

SUSAN E. POWERS
Clarkson University
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EDUCATION

The University of Michigan

Doctor of Philosophy, Environmental Engineering, July 1992.

Clarkson University

Master of Science, Civil and Environmental Engineering, May 1985.

Bachelor of Science, Chemical Engineering, May 1983 (with Great Distinction).

PROFESSIONAL REGISTRATION

New York State Professional Engineer, License #071061

PROFESSIONAL EXPERIENCE

- 2017-present Director, Institute for a Sustainable Environment, Clarkson Univ., Potsdam NY
- 2015-2016 Interim Director, Institute for a Sustainable Environment, Clarkson University, Potsdam NY
- 2010-present Jean '79 and Robert '79 Spence Professor of Sustainable Environmental Systems, Institute for a Sustainable Environment, Clarkson University, Potsdam NY
- 2010-present Associate Director for Sustainability, Institute for a Sustainable Environment, Clarkson University, Potsdam NY
- 2014 Guest Professor, Department of Environmental Engineering, Technical University of Denmark, Lyngby DK (January – June, sabbatical leave).
- 2005-2010 Associate Dean of Engineering for Research and Graduate Studies, Coulter School of Engineering, Clarkson University, Potsdam NY
- 2004 Visiting Researcher, DOE National Renewable Energy Laboratory, Golden CO (sabbatical leave, January-May)
- 1992-present Department of Civil and Environmental Engineering, Clarkson University, Potsdam, NY: Professor (2002-present), Associate Professor (1998-2002), Assistant Professor (1992-1998)
- 2002-2003 Director, Clarkson University Center for the Environment

EDUCATION INTERESTS AND RESEARCH

In the wide range of classes that Dr. Powers has taught, she focuses on teaching the *process* of engineering problem solving in a real-world environment. By focusing on complex and relevant environmental problems, the importance of societal impacts and communication can be stressed as well as providing a basis and relevance for technical material needed to address the engineering problem. This approach has been used in classes designed for middle school science and technology subjects, undergraduate environmental engineering lab and design classes, and classes in groundwater flow, physico-chemical processes, global climate change and industrial ecology.

Her education and scholarly work are integrated through research on aspects of engineering and broader STEM education. She has had several education oriented research grants, including the NSF Director's Award as a Distinguished Teaching Scholar. Among these efforts, she has promoted and assessed the value of utilizing relevant project-based experiences to improve energy and climate change literacy of middle school, high school and college students and the general public.

TECHNICAL RESEARCH INTERESTS

Dr. Powers' has historically worked in the area of multiphase flow and contaminant transport in subsurface systems, with specific emphasis on the fate, transport, and remediation of nonaqueous phase liquids (NAPLs) in complex systems. Research projects included the physical and chemical complexities associated with aquifer heterogeneities and non-ideal chemical mixtures.

Research on the environmental fate of oxygenated gasoline led to her interest in the application of science to aid in regulatory and policy decisions with a broader perspective on the environmental impacts of energy policy over the life cycle of energy systems. Projects completed in this area include environmental life cycle management issues for gasoline, other transportation fuels and energy systems, and waste-to-energy systems. Her current research is especially focused on defining and quantifying metrics that can be used to assess the energy and environmental benefits and liabilities associated with waste management and energy systems.

HONORS AND AWARDS

AEESP Distinguished Service Award, Assoc. Environ. Engineering and Science Professors, 2019

Inducted into Phalanx campus leadership society, April 2018

Phalanx Distinguished Service Award, Clarkson University, April 2017, April 2018

Phalanx Distinguished Service Award presented to the ISE, Clarkson University, April 2016

Residence Hall Association Faculty Award, Clarkson University, April 2015

Phalanx's Commendable Service Award, Clarkson University, April 2014

Inducted in the inaugural cohort of *AEESP Fellows*, July 2013, Golden CO

Inducted in the inaugural cohort into Clarkson's chapter of *Tau Chi Alpha*, Environmental Engineering Honor Society, April 2013.

Spirit of Entrepreneurship Award, Reh Center of Entrepreneurship, Clarkson University, 2012.

Premier Curriculum Award for K-12 Engineering, from *TeachEngineering*, the National Science Foundation's Digital Library for Engineering Pathways, Received by S.E. Powers and J.E. DeWaters for the *Energy Systems and Solutions* 8th grade curriculum, 2009.

"Best Paper Award" out of 76 submitted papers. Awarded by the ASEE K-12 Division at the 2008 Annual ASEE conference. Powers, S.E., B. Brydges, P. Turner, G. Gotham, J.J. Carroll, D.G. Bohl "Successful Institutionalization of a K-12 - University STEM Partnership Program." In: *Proceedings of the 115th Annual ASEE Conference & Exposition* (Pittsburgh PA, June, 2008, on CD, Session # AC 2008-1652)

NSF Directors Award – Distinguished Teaching Scholar, 2004, Washington DC

PUBLIC WORKS magazine, identified as one of 50 Trendsetters of the year, 2004 (vol 135, no. 12).

Appointed EPA Science Advisory Board, Environmental Engineering Committee, 2003

AEESP Distinguished Service Award, Assoc. Environmental Engineering and Science Professors, 2001

Boeing Outstanding Educator Award (one member of winning team of Clarkson faculty and staff), 2001

Albert D. Merrill Award, Dept. Civil & Environmental Engineering, Clarkson University, 2001

Listed in *Who's Who in America - Science and Engineering*, 5th ed., 1999

J.W. Graham, Jr. Faculty Research Award, Clarkson University, 1998

Listed in *Who's Who Among America's Teachers*, 5th ed., 1998

Albert D. Merrill Award, Dept. Civil & Environmental Engineering, Clarkson University, 1998

Dow Outstanding New Faculty Award, St. Lawrence Section of ASEE, 1997

Clarkson University Outstanding New Teacher Award, 1995

Clarkson University Outstanding Advisor Award, 1995

Best Presentation Award in the session on "Engineering and Technology Curricula for the 21st Century" at the St. Lawrence Section ASEE Meeting, 1995

Alcoa Faculty Award, Clarkson University, 1992

Graduate Student Award, Lewis Publishers/ACS Environmental Division, 1992

Benton Fellowship, The University of Michigan, 1987-1988

Civil Engineering Scholarship, The University of Michigan, 1987-1990

HONORS AND AWARDS (cont.)

Omega Chi Epsilon Senior Award, Clarkson University, 1983

Pablo Guttman Memorial Award, Clarkson University, 1982

Awards Received by Students

Zeller, B., A. Guinta, Community Composting in Potsdam. Best poster – Environmental. Awarded at the NY AWMA annual meeting, Syracuse NY, April 2018

Hait, Amy (undergraduate research advisee), received a 2016 EPA GRO award for research

Dixon, E., C. Raymond, \$CORE – Improving energy efficiency in off campus student housing. Third place award for undergraduate division. Received at the NYSP2I Go Green on Campus competition, April, 2014, Rochester NY.

Brabant, V., Second Place for Presentation, Graduate Student Division, New York Water Environment Association Annual Meeting. New York City, February 2014.

Honorable Mention, Faculty co-advisor to algae-biodiesel student team competing in the EPA P3 Sustainability Competition, May 2012.

Zhao Y., First place for Poster – “Garbage Juice to Engine Use: Analysis of Algal Growth Characteristics in Landfill Leachate.” Clarkson SURE conference, April 2012.

Villamaire, K., First Place for presentation – “Take It or Leave It: A Clarkson Solution to Waste.” Clarkson SURE conference, April 2012.

Lawson, K., “Algae Grown on Cow Manure for Biodiesel Production.” First place award for poster presentation in the energy and environment division of the SURE Conference, Clarkson University, Potsdam NY July 2012

Gonyer, D. and Jones, S., "The role of renewable energy in an integrated food and waste management system." Platinum Award (top prize for international students) for their poster and presentation at the 2012 International Capstone Design Contest on Renewable Energy Technology (February 13 – 14, 2012, Mokpo, Korea)

Gonyer, D., Controlled Environment High Rise Farm Business Plan, Presented at the 2011 Cleantech Open Regional Competition (advanced to the next round of competition) (July, 2011, Boston MA)

Gonyer, D., Spirit of Entrepreneurship Award. Awarded by the Reh Center for Entrepreneurship, Clarkson University, Potsdam NY, July 2011

Gonyer, D., S. Bonnell, Controlled Environment High Rise Farm Business Plan. Presented at the Cleantech/Sustainability Track of the New Energy New York (NENY) 2011 New York Business Plan Competition. (Albany, N.Y. June 2011) (awarded \$5,000, second-place prize)

Gonyer, D., Optimizing Year-round Food Production in Cold Climates via Controlled Environment High-Rise Farm: Design with Environmental and Economic Sustainability Factors. First place award in the Graduate Student Oral Presentation Competition at the Northeast Agricultural/Biological Engineering Conference (Geneva NY, July 2010).

Brouwer, A.F. A Dynamic, Systems Approach to Modeling Anaerobic Digester Systems. Third place award in the Graduate Student Oral Presentation Competition at the Northeast Agricultural/Biological Engineering Conference (Geneva NY, July 2010).

Phase II Award and Grant (\$75k), Faculty advisor to students competing in the EPA P3 sustainability design competition - Sustainable Year-Round Food Production in Cold Climates, April 2010.

Gonyer, D., NSF Graduate Fellowship, 2010.

2009 NSF-AEESP Grand Challenge Student Paper Award – received by Rice U. graduate student Rosa Dominguez-Faus for the paper: Dominguez-Faus, R., S.E. Powers, J. Burken, P.J.J. Alvarez, “The Water Footprint of Biofuels: A Drink or Drive Issue?” *Env. Sci. Technol.* 43(9): 3005–3010, 2009

First place award. "Zero Waste from a Semiconductor Manufacturing Facility." Faculty co-advisor to students receiving this award at WERC Environmental Engineering Design Competition, April, 2009.

HONORS AND AWARDS (cont.)Awards Received by Students (cont.)

- Baliga, R. "Life cycle impact assessment of biodiesel production from microalgae." Third place award for student presentation at the NYWEA Annual University Forum. (New York NY, February 2009).
- First place award at the Energy Smart EXPO competition, college division. Sponsored by WPBS, Watertown NY. Received by Nate Barlow and Mathew Ingraham for poster "Energy Choice Game," March 2008.
- Honorable Mention, Faculty co-advisor to biodiesel student team competing in the EPA P3 Sustainability Competition, May 2006.
- Third place award, student presentation competition at the annual NYWEA meeting received by Wenqian Dou, PhD candidate, 2006.
- Second place award in the Association for Environmental Engineering and Science Professors Annual Masters Thesis Award Competition. Received by Cory McDowell for thesis entitled: "Effects of Ethanol on the Migration and Distribution of Gasoline in the Vadose Zone," 2003.
- First place, student presentation competition at the annual NYWEA meeting. Received by Cory McDowell, M.S. candidate, 2002.
- First place award and "Best Paper." Faculty advisor to students receiving this award at WERC Environmental Engineering Design Competition, 1999.
- ACS Graduate Student Award in Environmental Chemistry, received by Jianzhong Zheng, PhD candidate, 1998.
- Best Presentation-Task 3. Faculty co-advisor to students receiving this award at WERC Environmental Engineering Design Competition, 1997.
- Second place in Water Environment Federation Student Paper Competition, Undergraduate Division. Received by Thomas Seacord, undergraduate laboratory assistant, 1996.
- First place award and "Best Bench-scale Demonstration." Faculty co-advisor to students receiving this award at WERC Environmental Engineering Design Competition, 1996.
- First place award and "Best Bench-scale Demonstration." Faculty co-advisor to students receiving this award at WERC Environmental Engineering Design Competition, 1995.
- Best Paper Design. Faculty co-advisor to students receiving this award at WERC Environmental Engineering Design Competition, 1993.

PUBLICATIONS*Refereed Journal Papers (student authors are italicized)*

1. Powers, S.E., A.G. Collins, J.K. Edzwald, and J.M. Dietrich, "Modeling an Aerated Bubble Ammonia Stripping Process." *J. WPCF*, 59: 92-100, 1987.
2. Powers, S.E., C.O. Loureiro, L.M. Abriola, and W.J. Weber, Jr., "Theoretical Study of the Significance of Nonequilibrium Dissolution of Nonaqueous Phase Liquids in Subsurface Systems." *Water Resour. Res.*, 27(4): 463-478, 1991.
3. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "An Experimental Investigation of NAPL Dissolution in Saturated Subsurface Systems: Steady-State Mass Transfer Rates." *Water Resour. Res.*, 28(10): 2691-2706, 1992.
4. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "An Experimental Investigation of NAPL Dissolution in Saturated Subsurface Systems: Transient Mass Transfer Rates." *Water Resour. Res.*, 30(2): 321-332, 1994.
5. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "Development of Phenomenological Models for NAPL Dissolution Processes." *J. Contam. Hydrol.*, 16(1): 1-33, 1994.
6. Ripp, J., J. Villaume, and S.E. Powers, "The Application of Geochemical Principles to the Investigation of DNAPL Contamination at Manufactured Gas Plant Sites." *Land Contamination and Reclamation*, 3(4), 1995.
7. Powers, S.E., and M.E. Tamblin, "Wettability of Porous Media after Exposure to Synthetic Gasolines." *J. Contam. Hydrol.*, 19(2): 105-125, 1995.
8. Powers, S.E., W.H. Anckner, and T.F. Seacord, "The Wettability of NAPL-Contaminated Sands." *J. Environ. Engrg.*, 122(10): 889-897, 1996.
9. Powers, S.E., and A.K. Zander, "Stabilization of a Mixed Waste Sludge for Land Disposal." *Hazardous Waste and Hazardous Materials*. 13(4): 515-524, 1996.
10. Gierke, J.S., and S.E. Powers, "Increased Implementation of In Situ Treatment Technologies Through Field Scale Performance Assessments." *Water Environ. Res.*, 69(2): 196-205, 1997.
11. Powers, S.E., J.F. Villaume, and J.A. Ripp, "Multivariate Analyses to Improve Understanding of NAPL Pollutant Sources." *Ground Water Monitoring and Remediation*, 17(2), 130-140, 1997.
12. Powers, S.E., and S.J. Grimberg, "Experiments to Illustrate Phase Partitioning and Transport of Environmental Contaminants." *CEE: Chemical Engineering Education*, 32(1): 40-45, 1998.
13. Heermann, S.E., and S.E. Powers, "Modeling the Partitioning of BTEX in Water - Reformulated Gasoline Systems Containing Ethanol." *J. Contam. Hydrol.*, 34(4): 315-341, 1998.
14. Powers, S.E., I. M. Nambi, and G.W. Curry, Jr., "NAPL Dissolution in Heterogeneous Systems: Mechanisms and a Local Equilibrium Modeling Approach." *Water Resour. Res.*, 34(12): 3293-3302, 1998.
15. Zheng, J., and S.E. Powers, "Organic Bases in NAPLs and their Impact on Wettability." *J. Contam. Hydrol.*, 39(4): 161-181, 1999.
16. Morshed, J., and S.E. Powers, "Regression and Dimensional Analysis for Two-Phase Flow Modeling." *Transport in Porous Media*, 38(1-2): 205-221, 2000.
17. Davis, S.W., and S.E. Powers, "Evaluation of Alternative Sorbents for Removal of MTBE from Groundwater." *J. Environ. Engrg.*, 126(4): 354-360, 2000.
18. Nambi, I.M., and S.E. Powers, "NAPL Dissolution in Heterogeneous Systems: Experimental Results in a Simplified System." *J. Contam. Hydrol.*, 44(2): 161-184, 2000.

PUBLICATIONS (cont.)Refereed Journal Papers (cont.)

19. Powers, S.E., D. Rice, B. Doohar P.J.J. Alvarez, “Replacing MTBE with Ethanol as a Gasoline Oxygenate –How May Ground Water Resources Be Impacted?” *Environ. Sci. Technol.* 35(1), 24A-30A, 2001.
20. Powers S.E., C.S. Hunt, S.E. Heermann, H.X. Corseuil, D. Rice, and P.J.J Alvarez. “The transport and fate of ethanol and BTEX in groundwater contaminated by gasohol.” *Critical Reviews in Environmental Science and Technology.* 31(1): 79-123, 2001.
21. Zheng, J., S. Behrens, M. Borkovec, and S.E. Powers, “Predicting the Wettability of Quartz Surfaces Exposed to Dense Non-aqueous Phase Liquids” *Environ. Sci. Technol.* 35(11): 2207-2213, 2001.
22. Zheng, J., S.E. Powers, “Asphaltenes from coal tar and creosote: Their role in reversing the wettability of aquifer systems.” *J. Colloid Interface Sci.* 244(2): 365-371, 2001.
23. Hwang, S., K. Lee, D. Lee, and S.E. Powers, “Models for Estimating Soil Particle-Size Distributions.” *Soil Sci. Am. J.* 66(4): 1143-1150, 2002.
24. Giese, S.W., and S.E. Powers, “Using Polymer Solutions to Enhance the Recovery of Coal Tar and Creosote DNAPLs.” *J. Contam. Hydrol.* 58(1-2): 147-167, 2002.
25. Hugaboom, D.A., and S.E. Powers, “Recovery of Coal Tar and Creosote from Porous Media: The Influence of Wettability.” *Ground Water Monitoring and Remediation*, 22(4): 83-90, 2002.
26. Ahmadi, A., B. Williamson, T.L. Theis, S.E. Powers, Life Cycle Inventory of Toner Produced for Xerographic Processes. *J. Cleaner Production*, 11(5): 573-582, 2003.
27. Hwang, S., and S.E. Powers, “Estimating Unique Soil Hydraulic Parameters from Multi-Step Outflow Experiments with Sandy Media.” *Adv. Water Res.* 26(4): 445-456, 2003.
28. Hwang, S.I. and S.E. Powers, “Lognormal Distribution Model for Estimating Soil Water Retention Curves for Sandy Soils.” *Soil Science*, 168(3): 156-166, 2003.
29. Nambi, I.M., and S.E. Powers, “Mass Transfer Correlations for NAPL Dissolution from Regions with High Initial Saturations.” *Water Resour. Res.*, 39(2): SBH 4-1 – 4-11, 2003.
30. McDowell C.J., and S.E. Powers, “Mechanisms Affecting the Infiltration and Redistribution of Ethanol-Blended Gasoline in the Vadose Zone.” *Environ. Sci. Technol.* 37(9): 1803-1810, 2003.
31. Hwang, S., and S.E. Powers, “Using Particle-Size Distribution Models to Estimate Soil Hydraulic Properties.” *Soil Sci. Soc. Am. J.*, 67(7), 1103-1112, 2003.
32. Zheng, J. and S.E. Powers, “Identifying the Effects of Polar Constituents in Coal-Derived DNAPLs on Interfacial Tension.” *Environ. Sci. Technol.* 37(14): 3090-3094, 2003.
33. McDowell C.J., T. Buscheck and S.E. Powers, “Behavior of Gasoline Pools Following a Denatured Ethanol Spill.” *Ground Water* 41(6): 746-757, 2003.
34. Hwang, S.I., K.P. Lee, D.S. Lee, S.E. Powers, “Effects of fractional wettability on capillary pressure-saturation-relative permeability relations of two-fluid systems.” *Adv. Water Res.* 29(2): 212-226, 2006.
35. Powers, S.E., “Nutrient Loads to Surface Water from Row Crop Production.” *Int. J. LCA*, 12(6): 399-407, 2007. (<http://dx.doi.org/10.1065/lca2007.02.307>)
36. Grimes, H.G., T.P. Seager, T.L. Theis, S.E. Powers, “A game theory framework for cooperative management of refillable and disposable bottle lifecycles.” *J. Cleaner Prod.*, 15(17): 1618-1627, 2007 ([doi:10.1016/j.jclepro.2006.08.007](http://dx.doi.org/10.1016/j.jclepro.2006.08.007)).
37. Lavigne, A., S.E. Powers, “Valuing fuel ethanol feedstock options from multiple energy perspectives: corn and corn stover feedstocks.” *Energy Policy*, 35: 5918–5930, 2007.

PUBLICATIONS (cont.)Refereed Journal Papers (cont.)

38. Grimberg, S.J., T.A. Langen, L.D. Compeau, S.E. Powers, “A Theme-Based Seminar on Environmental Sustainability Improves Participant Satisfaction in an Undergraduate Summer Research Program.” *J. Engrg. Educ.*, 97(1), 95-103, 2008.
39. Dou, W., Omrane, K., S.J. Grimberg, M. Denham and S.E. Powers, “Characterization of DNAPL from the U.S. DOE Savannah River Site.” *J. Contam. Hydrol*, 97(1-2): 75-86, 2008. (doi:10.1016/j.jconhyd.2008.01.002)
40. Dominguez-Faus, R., S.E. Powers, J. Burken, P.J.J. Alvarez, “The Water Footprint of Biofuels: A Drink or Drive Issue?” *Env. Sci. Technol.* 43(9): 3005–3010, 2009 (feature) (doi: 10.1021/es802162x) (Rice U. graduate student R. Dominguez-Faus received the 2009 NSF-AEESP Grand Challenge Student Paper Award for this paper)
41. Kusiima, J.M., S.E. Powers, “Monetary Value of the Environmental and Health Externalities Associated with Production of Ethanol from Biomass Feedstocks. *Energy Policy*, 38(6): 2785-2796, 2010. (doi:10.1016/j.enpol.2010.01.010)
42. Powers, S.E., R. Dominguez-Faus, P.J.J. Alvarez, “Commentary - The water footprint of biofuel production in the United States.” *Biofuels*, 1(2): 255-260, 2010. (doi:10.4155/BFS.09.02)
43. Link, A., M. Chen, S.E. Powers, S.J. Grimberg, “Effects of growth conditions and NAPL presence on transport of *Pseudomonas saccharophilia* P15 through porous media.” *Water Research*, 44: 2793 – 2802, 2010. [doi:10.1016/j.watres.2010.02.012](https://doi.org/10.1016/j.watres.2010.02.012)
44. Baliga, R., S.E. Powers, “Sustainable Algal Biodiesel Production in Cold Climates.” *International Journal of Chemical Engineering*. Article ID 102179, 13 pages, 2010. doi:10.1155/2010/102179. <http://www.hindawi.com/journals/ijce/2010/102179.html>
45. DeWaters, J.E., S.E. Powers, “Energy Literacy of Secondary Students in New York State.” *Energy Policy*. 39: 1699–1710, 2011. doi:10.1016/j.enpol.2010.12.049.
46. Powers, S.E., J.E. DeWaters, M.Z. Venczel, “Teaching Lifecycle Perspectives – A Sustainable Transportation Fuels Unit for High School and Undergraduate Engineering Students.” *ASCE J. Prof. Issues in Engrg. Educ. & Practice*, 137(2): 55-64, 2011. DOI: [10.1061/\(ASCE\)EL.1943-5541.0000059](https://doi.org/10.1061/(ASCE)EL.1943-5541.0000059)
47. Powers, S.E., J.C. Ascough II, R. Nelson, “Modeling water and soil quality environmental impacts associated with bioenergy crop production and biomass removal in the Midwest USA.” *J. Ecological Modelling*, 222(14): 2430 – 2447, 2011.
48. Brouwer, A.F., S.J. Grimberg, S.E. Powers. “The Dynamic Anaerobic Reactor & Integrated Energy System (DARIES) Model: Model Development, Validation, and Sensitivity Analysis.” *Water Environment Research* 84(12): 2090-2098, 2012.
49. DeWaters, J.E., S.E. Powers, “Establishing Measurement Criteria for an Energy Literacy Questionnaire.” *J. Environmental Education*, 44(1), 38-55, 2013. DOI:10.1080/00958964.2012.711378 (<http://dx.doi.org/10.1080/00958964.2012.711378>)
50. DeWaters, J.E., S.E. Powers, B. Qaqish, and M.E. Graham. “Designing an Energy Literacy Questionnaire for Middle and High School Youth.” *J. Environmental Education*, 44(1): 56-78, 2013. DOI:10.1080/00958964.2012.682615 <http://www.tandfonline.com/eprint/ciYQnqgYcJbtNDYKKgfY/full>
51. Gilbraith, N., S.E. Powers, Residential Demand Response Reduces Pollutant Emissions on Peak Electricity Demand Days. *Energy Policy* 59: 459-469, 2013. DOI: 10.1016/j.enpol.2013.03.056
52. Kring, S.A., X. Xia, S.E. Powers, MR. Twiss, Crustacean zooplankton in aerated wastewater treatment lagoons as a potential feedstock for biofuel, *Environmental Technology* 34(13-14): 1973-1981, 2013. DOI:10.1080/09593330.2013.795985

PUBLICATIONS (cont.)Refereed Journal Papers (cont.)

53. DeWaters, J.E., C. Andersen, A. Calderwood, S.E. Powers, Improving Climate Literacy with Project-Based Modules Rich in Educational Rigor and Relevance. *Journal of Geoscience Education*, 62(3): 469-484, 2014. <https://doi.org/10.5408/13-056.1>
54. Sherman, A., A.J. Rowe, S. Bird, S.E. Powers, L. Legault, Motivational orientation explains the link between political ideology and proenvironmental behavior. *Ecopsychology*, 8(4): 239-249, 2016. doi:10.1089/eco.2016.0029
55. Nikdel, L., K. Janoyan, S. D. Bird, S.E. Powers, Multiple Perspectives of the Value of Occupancy-based HVAC Control Systems. *Buildings and Environment*, November 2017. DOI:10.1016/j.buildenv.2017.11.039
56. Hait, A., S.E. Powers, The Value of Reusable Feminine Hygiene Products Evaluated by Comparative Environmental Life Cycle Assessment. *Resources, Conservation & Recycling* 150 (2019) 104422. <https://doi.org/10.1016/j.resconrec.2019.104422>
57. Legault, L., S. Bird, S.E. Powers, A. Sherman, A. Schay, D. Hou, K. Janoyan, Impact of a Motivational Intervention and Interactive Feedback on Electricity and Water Consumption: A Smart Housing Field Experiment. *Environment & Behavior*, 52(6) 666-692 (2020) (electronic availability 2018), DOI: 10.1177/0013916518811433
58. Hait, A., Powers, S.E., Dataset: Feminine Hygiene Product Lifecycle Inventory and Impact Assessment. *Data in Brief*, 28 (2020) 104851. <https://doi.org/10.1016/j.dib.2019.104851>
59. Nikdel, L. A.E.S. Schay, D. Hou, S.E. Powers, Data-driven Occupancy Profiles for Student Housing, *Energy & Buildings*, 246, 111070, 2021. <https://doi.org/10.1016/j.enbuild.2021.111070>
60. Nikdel, L. A.E.S. Schay, D. Hou, S.E. Powers, Datasets for Occupancy Profiles in Apartment-style Student Housing for Occupant Behavior Studies and Application in Building Energy Simulation, *Data in Brief*, 37: 107205, 2021. DOI: 10.1016/j.dib.2021.107205
61. DeWaters, J.E., S.E. Powers, F. Bilow. An Introductory Energy Course to Promote Broad Energy Education for Undergraduate Engineering Students. *Sustainability*, 13, 9693, 2021. <https://doi.org/10.3390/su13179693>
62. Powers, S.E., J.E. DeWaters, S. Dhaniyala. Climate literacy – Imperative competencies for tomorrow’s engineers. *Sustainability*, 13, 9684, 2021. <https://doi.org/10.3390/su13179684>

PUBLICATIONSPeer-Reviewed Books, Book Chapters, Reports

63. Rice, D.W., S.E. Powers, and P.J.J. Alvarez, "Potential Scenarios for Ethanol-containing Gasoline Released into Surface and Subsurface Waters." In: *Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate*. Volume IV, Chapter 1. Published by the State of California, UCRL-AR-135949, 1999 (<http://www-erd.llnl.gov/ethanol/etohdoc/>).
64. Powers, S.E., and S.E. Heermann, "A Critical Review: The Effect of Ethanol in Gasoline on the Fate and Transport of BTEX in the Subsurface." In: *Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate*. Volume IV, Chapter 2. Published by the State of California, UCRL-AR-135949, 1999 (<http://www-erd.llnl.gov/ethanol/etohdoc/>).
65. Rice, D.W., P.J.J. Alvarez, S.E. Powers, *et al.*, "Knowledge Gaps Regarding the Surface Water and Groundwater Impacts of Ethanol-containing Gasoline and Recommendations for Future Research." In: *Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate*. Volume IV, Chap. 9. Published by the State of California, UCRL-AR-135949, 1999 (<http://www-erd.llnl.gov/ethanol/etohdoc/>).
66. Powers, S.E., J. Bisogni, J. Burken, K. Pagilla (eds.) *AEESP Environmental Engineering Processes Laboratory Manual*. Association of Environmental Engineering and Science Professors, Champaign IL, 2001 (on CD).
67. Grimberg, S.J. and S.E. Powers, "An Introduction to Phase Partitioning and Environmental Transport," In: *AEESP Environmental Engineering Processes Laboratory Manual* (Powers, S.E., J. Bisogni, J. Burken, K. Pagilla, eds.). Association of Environmental Engineering and Science Professors, Champaign IL, 2001 (Section 1-3-1, on CD).
68. Powers, S.E., "Residence Time Distributions in a Chlorine Contact Chamber." In: *AEESP Environmental Engineering Processes Laboratory Manual* (Powers, S.E., J. Bisogni, J. Burken, K. Pagilla, eds.). Association of Environmental Engineering and Science Professors, Champaign IL, 2001 (Section 1-2-4, on CD).
69. Powers, S.E., P.J.J. Alvarez, and D. Rice, "Increased Use of Ethanol in Gasoline and Potential Groundwater Impacts." In: *Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate: Subsurface Fate and Transport of Gasoline Containing Ethanol*, (D.W. Rice and R.T. Depue, eds.), Chapter 1. State of California, UCRL-AR-145380, 2001. (<http://www-erd.llnl.gov/ethanol/etohdocII/>)
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26. DeWaters, J.E., S.E. Powers, “SOLAR 2009: Development and use of an energy literacy survey.” In: *SOLAR 2009 Conference Proceedings*, 38th Annual meeting of the American Solar Energy Society (May 11-16, 2009, Buffalo, NY, paper number 0099).
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31. *Gilbraith, N.*, Powers, S.E. “Quantifying the Reduction in Emissions of Oxides of Nitrogen due to Residential Dynamic Pricing,” In: *Proceedings of the 2012 IEEE PES Transmission and Distribution Conference* (May 7-10, 2012, Orlando, Florida).
32. *Gilbraith, N.*, Powers, S.E., “The Effects of Time-Varying Electricity Tariffs on Emissions in New York City,” In: *Proceedings of the Eighth Annual Conference on Long Island Systems, Applications and Technology* (IEEE LISAT2012) (May 2012, Farmingdale, New York).
33. Powers, S.E., Menstrual cups better for you (and your purse) than tampons or pads. *Washington Post*, Oct. 12, 2021 https://www.washingtonpost.com/health/menstrual-cups-environmentally-friendly/2021/10/08/16b0d216-1a43-11ec-bcb8-0cb135811007_story.html ; from <https://theconversation.com/menstrual-cups-are-a-cheaper-more-sustainable-way-for-women-to-cope-with-periods-than-tampons-or-pads-165513>

PATENTS

“The Energy Game” Provisional Patent, 2006. S.E. Powers, J. DeWaters, Luke Dosiek, Amanda Lyndaker, Kirstin Schillemat, Chrissy Rubillo, Melissa Richards, Nate Barlow (Developed with support of NSF GK-12 and DTS awards) (Patent application submitted 08/07)

Patents Submitted by students:

"A Pedal Generator Electric Bicycle", M.R. Hueber (MS ESE ‘ 12) Patent pending. Submitted January 12, 2012

BUSINESS DEVELOPMENT

Companies started by students based on project work I advised

Blue Sphere Industries, Ltd., Daegan Gonyer (MS ES’11(ABD)), Shaun Jones (BS ME’10; ME CE’11), Sean Bonnell (BS Bus’10, MBA’11) started based on EPA P3 year-round food production project. (December 2010)

Fly Technologies, LLC. Started by Mark Huber (MS ESE’11), who is designing a new electric bicycle as a component of MS research. (January 2011)

RESEARCH GRANTS AND CONTRACTS*Proposals Funded*

- "Entrapment and Dissolution of Nonaqueous Phase Liquids in Heterogeneous Media," NSF-Research Initiation Award, September 1, 1993 - February 28, 1997 (\$96,500).
- "Research Experience for Undergraduates - Entrapment and Dissolution of Nonaqueous Phase Liquids in Heterogeneous Media," NSF, May 1, 1994 - February 28, 1997 (\$15,000).
- "Reformulated Gasoline Compositions to Minimize Impact of Subsurface Spills," General Motors Corp., January 1, 1995 - April 31, 1996 (\$40,000).
- "Interfacial Phenomena Associated with Complex NAPL Mixtures in the Subsurface," NSF-CAREER Program, July 1, 1995 - June 30, 1999 (\$271,263) (BES-9501567).
- "Reformulated Gasoline: Transport and Clean up of Subsurface Spills," EPA-Office of Exploratory Research, October 1, 1995-September 30, 1999 (\$240,800).
- "Chemometric Based Identification of Nonaqueous Phase Liquids in the Subsurface at Manufactured Gas Plant Sites," (with Dr. Philip K. Hopke, co-PI), Electric Power Research Institute, October 1, 1996 –Sept 30, 1998. (\$50,000).
- "Research Experience for Undergraduates - Interfacial Phenomena Associated with Complex NAPL Mixtures in the Subsurface," National Science Foundation, May 1, 1997 - September 30, 1999 (\$9,000).
- "Innovative Treatment and Remediation of Groundwater Contaminated with Radioactive and Hazardous Chemicals," (S.J. Grimberg, P.I.; S.E. Powers and A.K. Zander co-P.I.'s) National Collegiate Inventors and Innovators Alliance, February 1997 (\$7,000, 5 months).
- "Preventing Discharges of Coal Tar and Creosote to Surface Waters through the Immobilization of Subsurface Sources," (S.E. Powers, P.I.; A. J. Rabideau, co-P.I. (SUNY Buffalo)), Great Lakes Research Consortium, July 1997-July 1998 (\$20,000).
- "REU Site: Multiphase Processes in Environmental Systems," (S.E. Powers, P.I., S.J. Grimberg, co-P.I.), National Science Foundation, February 1998 – January 2001 (\$208,000) (EEC-9732294).
- "IGERT – Environmental Manufacturing Management" (T.L. Theis, P.I.), National Science Foundation (SEP share = \$179,936) (DGE-9870646).
- "Partners in Engineering." (J. DeWaters, co-P.I.) Engineering Information Foundation, June 1999 – June 2000 (\$20,000).
- "The effects of ethanol in gasoline on the fate and transport of fuel hydrocarbons released to surface and ground waters," Lawrence Livermore National Laboratory as a subcontract to the California State Water Review Board, July 1999 – September 2000 (\$25,900).
- "DNAPL Surface Chemistry: Its Impact on DNAPL Distribution in the Vadose Zone and its Manipulation to Enhance Remediation," (S.E. Powers, P.I., S.J. Grimberg, co-P.I.) DOE-EMSP, September 1999 – March 2003 (\$455,112).
- "K-12 Fellows to Initiate a Problem Based Learning Partnership," (S.E. Powers, P.I., and A.G. Collins, co-P.I.) National Science Foundation, September 1999 – August 2004 (\$987,190) (DUE 9979509).
- "Partners in Engineering: A Problem-Based Learning Approach for Encouraging Women and Girls in SMET," (S.E. Powers and J. DeWaters, co-P.I.) NSF, September 2000 – Aug 2003 (\$92,899) (DUE-9979279).
- "Microbial Processes at Interfaces Affect NAPL Distributions," National Science Foundation, (S.J. Grimberg, P.I.), July 1, 2000 – June 30, 2003 (\$353,401).
- "The Effect of Ethanol and Ethanol-Containing Gasoline on the Migration of Petroleum Products in the Vadose Zone," Lawrence Livermore National Laboratory as a subcontract to the California State Water Review Board, July 1, 2000 – September 31, 2003 (\$55,653).

RESEARCH GRANTS AND CONTRACTS (cont.)*Proposals Funded*

- "U.S.-Brazil Planning Visit: Environmental Impacts of Ethanol in Gasoline." National Science Foundation (P.J.Alvarez, (Univ. Iowa) P.I., S.E. Powers, co-P.I.) August 15, 2001 - January 31, 2002 (\$12,915 to University of Iowa.)
- "Creating Diversity in Middle School: A Project-Based Learning Partnership Program," GE Fund, March 2002-March 2005 (\$315,000).
- "Characterization of changes in Colloid and DNAPL Affecting Surface Chemistry and Remediation," (S.E. Powers, P.I., S.J. Grimberg and M. Denham (WSRC) co-P.I.s) DOE-EMSP, September 2003 – August 2005 (\$396,323).
- "K-12 Project Based Learning Partnership Program." NSF GK-12 Program (S.E. Powers, P.I., P. Turner and E. Oey (SLU) co P.I.s), July 2004 – June 2009 (\$2M) (DGE-0338216).
- "Methane Digester with added-value greenhouse," NYSERDA, (S.Powers, PI, S.J. Grimberg, P. Pillay, E. Thacher, co-PIs; from NYSERDA through subcontract to JCJDC), September 2004 – August 2007, (\$45k).
- "DTS Award - Energy and the Environment: Educating K-16 students to improve energy-related technological and environmental literacy." NSF DTS Award, June 2004 – June 2010 (\$305,000) (DUE-0428127).
- "Pushing the Boundaries: Making Research and Education in Environmental Engineering Count." (A.K. Zander PI; S.E. Powers Co PI) NSF, November 2004 – October 2005 (\$25,000).
- "St. Lawrence-Lewis County Math-Science Partnerships." (P. Turner PI of subcontract to Hermon-DeKalb Central School; S.E. Powers, B. Faber, K. Fowler and W. Hooper, co-PIs) NYSED, September 2004 – August 2007 (\$1.7 M total).
- "Exploring the Fate of Purinox Fuel in Subsurface Systems." Lubrizol Corp. \$12,944 April 2005 – January 2006.
- "Soil and Water Quality and Other Environmental Implications Associated with Corn Stover Removal and Herbaceous Energy Crop Production in Iowa." Enersol (as prime contractor to NREL), \$58,173, May 2005 – November 2007.
- Biodiesel as a sustainable alternative to petroleum diesel in school buses, EPA-P3 Award (A. Ferro, PI; A. Rossner and S. Powers co-PIs) September 2005 – May 2006 (\$10,000)
- Environmental and Economic Performance of an Integrated, Value Added Digester-Cogeneration Process, USDA (S.J. Grimberg PI; S. Powers, P. Pillay, E. Thacher, R. Welsh, co-PIs) January 2006 – February 2011 (\$806k)
- Dairy Farm Power and Energy from Agricultural Wastes: Increasing Profitability and Reducing Environmental Impact. NYS Agriculture and Markets, (S.J. Grimberg, PI; S. Powers, P. Pillay, E. Thacher, R. Welsh, R. Robbins co-PIs) January 2006 – Dec2010 (\$1,000k).
- Energy Economics of Farm Biogas in Cold Climates. DOE (P Pillay, PI; S. Powers, S. Grimberg, E. Thacher, R. Welsh, co-PIs) May 2006 – May 2008 (\$247,500).
- High School Earth Science Education Units Based on NSF Antarctica Research. NSF (PI: J. Dempsey; co-PI on supplement: S. Powers) September 2006 – September 2007, (\$15,000, OPP-0338226)
- Demonstrating the Value of Waste Biomass Feedstocks for Fuel Ethanol Production from Energy Policy Perspectives. USDA, March 2007 – August 2010 (PI: S. Powers \$250k)
- Active Multi-Disciplinary Learning in Science, Technology, Engineering, and Mathematics Fields, NSF, April 2007 – March 2012 (PI: H.H. Shen, S. Powers one of several co-PIs; \$460k, DUE-0631024)
- STEM Partnership Program. NYSED, July 2007-June2010 (PI: P. Turner. S. Powers one of 7 co-PIs; \$328k in year 1)
- Methane Digester with added-value greenhouse, NYSERDA, June 2008 – February 2011, (S.E. Powers, PI, S.J. Grimberg, P. Pillay, E. Thacher, co-PIs; from NYSERDA through subcontract to JCJDC), (\$154k).

RESEARCH GRANTS AND CONTRACTS (cont.)*Proposals Funded*

- Sustainable Year-Round Food Production in Cold Climates, USEPA P3 student design competition, (S.E. Powers, PI), August 2009-August 2010 (\$10k)
- Climate Change Literacy in New York State, NASA, Jan. 2010 – Dec 2012, (S.E. Powers, PI, co-Is: S. Dhaniyala, J.E. DeWaters, M.M. Small, T. Tuers (NYSERDA); \$375k/3 y)
- Sustainable Year-Round Food Production in Cold Climates, USEPA P3 student design competition – Phase II, (S.E. Powers, PI), August 2010-August 2011 (\$75k)
- Feasibility Analysis - Utilizing Waste Resources at DANC's Rodman Landfill for Algae Biodiesel Production (S.E. Powers, PI; M. Twiss, co-PI) DANC, January 2011 – September 2011 (\$20k)
- Utilization of Byproducts from a Solid Waste Landfill for the Sustainable Production of Algae Biodiesel (S.E. Powers, PI; M. Twiss, co-PI, \$15k, EPA P3; August 2011-August 2012)
- Integrated Food, Energy & Waste Program for Innovative Interdisciplinary Learning (S.E. Powers, PI) Dominion Foundation, September 2011 – September 2012 (\$40k)
- The Sprout Foundation Loan Fund for Student Start-Ups in Green Innovation (S.E. Powers, M. Compeau and M. Draper, co-PIs) Gift from the Sprout Foundation, January 2012-December 2017 (\$250k).
- Multiple Student Team Funding (R&D Development Projects). NYSP2I (PI: S. Powers; co-PIs: S. Grimberg; A. Rossner; T. Ortmeier; K. Visser), December 2011 – April 2012, (\$10,107)
- Renzi Food Sustainability Fund, Gift from Renzi Foodservice, Inc., July 2012 – June 2016 (\$25,000).
- Multiple Student Team Funding (R&D Development Projects). NYSP2I (PI: S. Powers) December 2012 – April 2013, (\$5,259)
- Engage and Excel: A framework for promoting 21st century skills by integrating campus sustainability initiatives and data into instructional practices. NSF TUES (DUE 1245622), (PI: S.E. Powers, Co-Investigators: D. Hou, S. Grimberg, J. DeWaters). February 1, 2013 – January 30, 2016 (\$200,000)
- Clean Energy and Smart Dorms: Creating a Motivational Intervention for Improved Energy Efficiency in University Housing. NYSERDA, S. Bird (PI), D. Hou, K. Janoyan L. Legault, and S. E. Powers (co-PIs). September 1, 2013 – August 31, 2016 (\$120,000)
- Multiple Student Team Funding (R&D Development Projects). NYSP2I (PI: S. Powers) December 2013 – April 2014, (\$2,800)
- Predictive Building Energy Modeling for Efficiency Improvements in Heating, Ventilation, Air Conditioning, and Domestic Hot Water. NYSERDA, D. Hou, PI, numerous co-PIs (\$100,000, July 1, 2014 – February 28, 2016)
- Transforming Food Waste Digestate into Fertilizer for Controlled Environment Food Production. NYSP2I, SE Powers, PI, SJ Grimberg, co-PI (\$75,000, July 1, 2014 – Sept 30 2015)
- Estimating Energy Savings from Smart Building Controls, K. Janoyan, S. Powers, S. Bird, D. Hou, P. Hopke, L. Legault, FLIR Corporation, (\$50,870, July 1, 2014 – May 31, 2016)
- Office Sustainability Certification, Powers, (PI), New York State Pollution Prevention Institute, State. (\$1,000 December 1, 2014 - April 21, 2015)
- Smart Housing Dashboard Development, Powers, (PI), New York State Pollution Prevention Institute, State. (\$1,500 December 1, 2015 - April 21, 2016)
- Ammonia Removal During Food Waste Anaerobic Digestion Increasing Energy Generation and Reactive Nitrogen Recovery, Grimberg (PI), Powers, Holsen, co-PIs. P3 Award: National Student Design Competition for Sustainability (\$15,000, October 2016 – April 2017)
- Ammonia Removal During Food Waste Anaerobic Digestion, Grimberg (PI), Powers, Holsen, co-PIs. EPA P3 Phase 2 Award (\$75,000, March 2018 – February 2021)
- Air Pollution, Health and Climate in India: Building Capacity for Health Research and Program Evaluation. US-India Educational Foundation. Dhaniyala (PI), Powers, co-PI (\$190,000, 9/1/2016 – 8/31/2019)
- Potsdam Community Food Waste: Education, Engagement and Planning, NYSP2I Powers (PI), DeWaters and French (co-PIs) (\$20,000, Oct 2020 – Mar 2022)

RESEARCH GRANTS AND CONTRACTS (cont.)

Proposals Funded

Clarkson U ESP NYPA Climate Science Training Program, NYPA Powers, (PI), DeWaters and Johnson (co-PIs) (w/ sub-contract to SUNY ESF) (\$306,000, Sept 2020 – May 2022)

BurpBusters Green Chemistry, Bigelow Labs. S. Rogers (PI), SE Powers (co-PI) (\$312,128, Jul 2021 – Jun 2023)

Burp Busters Coast to Cow to Consumer, USDA AFRI SAS, as sub-contract through Bigelow Labs. S. Rogers (PI), SE Powers and S Grimberg (co-PIs) (\$1,576,902, Oct 2021 – Sept 2026)

PRESENTATIONS (*speakers are underlined, students italicized*)Invited Seminars and Presentations

1. Powers, S.E., L.M. Abriola, J.S. Dunkin, and W.J. Weber, Jr., "Experimental Assessment of the Impact of Pore Structure on Interphase Mass Transfer Rates and Blob Distributions During NAPL Dissolution Processes." American Geophysical Union Spring Meeting, Baltimore, Maryland, May 1991.
2. Powers, S.E., "Multiphase Flow in Porous Media," General Motors - Remediation Technology Section, Warren, MI, March 22, 1994.
3. Powers, S.E., "Groundwater Contamination and Remediation," SUNY Potsdam, April 1994.
4. Powers, S.E., "NAPL Entrapment and Dissolution in Subsurface Systems," SUNY Buffalo, May 6, 1994.
5. Powers, S.E., "Understanding the Nature of NAPL Pollution Sources: Improving Analysis of Groundwater Data," Parsons Engineering Science, Syracuse, NY, February 22, 1996.
6. Powers, S.E., "The Wettability of NAPL-Contaminated Sands," University of Massachusetts at Amherst, Sept. 13, 1996.
7. Powers, S.E., "Compositional Effects on the Wettability of NAPL-Contaminated Sands," University of Iowa, Iowa City, March 17, 1997.
8. Powers, S.E., "Chemometric Analysis for Characterizing NAPL Spills at MGP Sites," PECO Energy, Philadelphia, PA, May 8, 1997.
9. Powers, S.E., "NAPL Composition: Its Impact on Interfacial Phenomena and Multiphase Flow," Michigan Technological University, Houghton MI, November 3, 1997.
10. Powers, S.E., "Multidisciplinary Learning in CEE Capstone Design Classes," Michigan Technological University, Houghton MI, November 3, 1997.
11. Powers, S.E., "Multivariate Analysis for Characterizing NAPL Sources," Michigan Technological University, Houghton MI, November 3, 1997.
12. Powers, S.E., *J. Zheng* and *D. Hugaboom*, "Organic Bases in Complex NAPLs and Their Impact on Multiphase Flow in Subsurface Systems," AGU Fall Meeting-Session on Multicomponent Contaminants in Surface and Ground Waters, San Francisco, December, 1997.
13. Powers, S.E., *D. Hugaboom*, and *J. Morshed*, "Reduction in Creosote Mobility – A potential remedial technology," Blasland, Bouck and Lee, Syracuse NY, May 26, 1998.
14. Powers, S.E., *D.A. Hugaboom*, and *J. Zheng*, "Organic Bases in Complex NAPL Mixtures and their Effect on Recovery." University of Vermont, Burlington VT, October 23, 1998.
15. *Hugaboom, D.A.*, S.E. Powers, and *J. Zheng*, "The Impact of NAPL Composition and Aqueous pH on the Recovery of NAPLs from Quartz Sand." AGU Fall Meeting, San Francisco CA, December 1998.
16. Powers, S.E., "An Environmental Basis for Selecting an Appropriate Material for Packaging." Tuskegee University AIChE chapter, September 20, 1999.
17. Powers S.E., and *S.E. Heermann*, "Gasohol in the Subsurface: Mechanisms of Mass Transfer Between a Gasoline Pool and Groundwater," Lawrence Livermore National Laboratory, Livermore CA, Oct. 4, 1999.
18. Powers S.E., and *S.J. Grimberg*, "Interfacial Phenomena and its Impact on the Distribution of DNAPL in the Subsurface," Savannah River National Laboratory, Aiken SC, November 5, 1999.
19. Powers S.E. "Impacts of gasoline oxygenates on groundwater pollution" Seminar presented at Syracuse University, Syracuse NY, March 22, 2000.
20. Powers S.E., "The role of gasoline blended with ethanol in the environment." Presented at the Forum on Ethanol Blending in Gasoline in the Northeast and Mid Atlantic, Sponsored by NESCAUM, Manchester NH, June 27, 2000
21. Powers S.E., "Mechanisms affecting the wetting conditions in NAPL-water-mineral systems." Presented at the University of Waterloo, Waterloo, Ontario, July 27, 2000.

PRESENTATIONS (*cont.*)*Invited Seminars and Presentations (cont.)*

22. Powers S.E., “Mechanisms affecting the wetting conditions in environmental systems contaminated by nonaqueous phase liquids.” Presented at the Gordon Conference on Modeling Fluid Flow in Permeable Media, Andover NH, August 9, 2000.
23. Powers S.E., “The role of gasoline blended with ethanol on groundwater contamination.” Presented at the New York Ethanol Roundtable Conference, Sponsored by DOE and NYSERDA, Albany NY, Sept. 14, 2000.
24. Powers S.E., "Transport and dissolution of ethanol and ethanol-blended gasoline in the subsurface." Presented at a workshop on the increased use of ethanol and alkylates in automotive fuels in California. Sponsored by the U.S. DOE and the Western States Petroleum Assoc. Oakland CA, April 11, 2001.
25. Powers S.E. “Impacts of gasoline oxygenates on groundwater pollution” Presented at a workshop on MTBE - Fate, Transport and Remediation. Sponsored by the Central New York Association of Professional Geologists. Syracuse NY, May 3, 2001.
26. Powers S.E. “Impacts of gasoline oxygenates on groundwater pollution” Seminar presented at University of Michigan, Ann Arbor MI, May 4, 2001.
27. Powers, S.E. “Problem Solving and Scientific Inquiry in Middle School Science: Clarkson’s Project-Based Learning Partnership Program.” Keynote presentation at the Ogdensburg Free Academy Science Symposium. Ogdensburg NY, June 6, 2001.
28. Powers S.E., “A Framework for Estimating the Lifecycle Energy Value of Alternative Transportation Fuels.” Presented at the University of Michigan, Ann Arbor MI, March 15, 2002.
29. Powers S.E., and A. Lavigne, “Life Cycle Impacts of Fuel Ethanol” Seminar presented at the Universidade Federal de Santa Catarina, Dept. de Engenharia Sanitária e Ambiental, Florianópolis, BRAZIL, March 19, 2002.
30. Powers, S.E., “Transport and dissolution of ethanol and ethanol-blended gasolines in the subsurface.” Petrobras, Rio de Janeiro, BRAZIL, March 20, 2002.
31. Powers, S.E., “Ethanol in your Gasoline: Energy and Environmental Implications.” Women in Scientific and Environmental Professions Seminar Series, SUNY ESF, February 4, 2003.
32. Powers S.E., and A. Lavigne, “Lifecycle approach to alternative fuels: Ethanol in your Gasoline.” North Country Sustainable Energy Fair, Canton NY, April 5, 2003.
33. Powers, S.E., “Transport and dissolution of ethanol and ethanol-blended gasolines in the subsurface.” University of Oklahoma, April 8, 2003.
34. Powers, S.E., “Partners in Engineering - A middle school-collegiate mentoring and classroom partnership.” University of Oklahoma, April 9, 2003.
35. Powers, S.E., “A Primer on Lifecycle Assessment as Applied to the Paper and Pulp Industry.” 2003 Joachim Forum, SUNY ESF, Syracuse NY, October 23, 2003.
36. Powers, S.E., “Water Quality Issues Associated With Biomass Fuels: Field to Tank,” DOE National Renewable Energy Laboratory, Golden CO, March 8, 2004.
37. Powers, S.E. “Project-Based Learning in Industrial Ecology Classrooms.” Kettering Institute Industrial Ecology Advisory Committee, Flint MI, September 29, 2004.
38. Powers, S.E. “Water Quality Implications of Using Ethanol as a Transportation Fuel,” Dartmouth University Jones Seminar Series, Hanover NH, January, 2005.
39. Powers, S.E. “What’s in that DNAPL and Why does it Matter?” NIEHS DNAPL Source Zone Workshop, University of Arizona, Tucson AZ, February 2005.
40. Powers, S.E., W. Kissam, A. Sargent, “Teaching as a Career Science, Math, Engineering,” 9th Annual Northern New York CSTEP Career Exploration Symposium, Clarkson U., Potsdam NY, March 2005.
41. Powers S.E. “Impacts of gasoline oxygenates on groundwater pollution” Seminar presented at Nanjing University, Nanjing China, May, 2005.

PRESENTATIONS (*cont.*)*Invited Seminars and Presentations (cont.)*

42. Powers S.E., “A historical perspective and future directions for environmental engineering research in the U.S.” Seminar presented at Nanjing University, Nanjing China, May, 2005.
43. Powers S.E., “Synergy between Teaching, Research and Outreach: Energy and Environment Applications.” Presented at the 2005 College-Wide Symposium on Teaching Research and Outreach, SUNY ESF, Syracuse NY, October 7, 2005.
44. Powers S.E., University Perspective –Engaging Students in Science and Engineering Education and Careers, Achieving Success through K-12, College and Business Collaboration. ESF Outreach STEM Forum, Syracuse NY, Dec 8, 2005.
45. Powers, S.E., “Project-Based Learning to Motivate Students in Science.” First Annual JH-HS Science Conference, Massena NY, March 17, 2006.
46. Powers, S.E., “Environmental and Energy Benefits of Biofuels - A Lifecycle Perspective.” SUNY ESF, Bionergy and Bioproducts Symposium Series, Syracuse NY, April 2006.
47. Powers, S.E., “Lifecycle Environmental and Energy Benefits of Biodiesel.” North Country Sustainable Energy Fair, Canton NY, May, 2006.
48. Powers, S.E., “Environmental and Energy Benefits of Biofuels - A Lifecycle Perspective.” Conference on Biomass to Chemicals and Fuels: Science, Technology and Public Policy, Rice University, Houston TX, September, 2006.
49. Powers, S.E., P. Turner, “Human Issues Symposium: Creating Global Perspectives in Learners.” Panel presentation presented to SLL BOCES administrators and school board members. Potsdam NY, March 2007.
50. Powers, S.E., “Role of Industry in Today’s PhD Education.” Presented at General Motors Fuel Cell Division, Rochester NY, May 2007.
51. Powers S.E., “Perspectives on the lifecycle environmental impacts of ethanol fuel.” Presented at a meeting of the Roundtable on Environmental Health Sciences, Research, and Medicine: Environmental Health, Energy, and Transport: Bringing Health to the Transportation Fuel, National Academy of Sciences, Washington DC, November 2007.
52. Powers, S.E., “Environmental and Energy Benefits of Biofuels - A Lifecycle Perspective.” Indian Inst. Of Technology, Madras, January 2008. (and IIT Bombay, 01/08)
53. Powers, S.E., “What’s in that DNAPL and Why is it Important?” Indian Inst. Of Technology, Madras, January 2008.
54. Powers, S.E., DeWaters, J., Visser, K., Promoting Energy Literacy – Results of STEM Institute, St. Lawrence Valley STEM Teachers’ Conference, Clarkson University, March 20, 2008.
55. Powers, S.E., “Environmental and Energy Benefits of Biofuels - A Lifecycle Perspective.” University of Michigan, Ann Arbor Michigan, April 2008.
56. Powers, S.E., “Sustainability of Biofuels – The Good and the Bad.” North Country Sustainable Energy Fair, Canton NY April 2008.
57. Powers, S.E., “Water Quality Implications of our Nation’s Ethanol economy,” Presented at Rice University’s James A. Baker III Institute for Public Policy Energy Forum: U.S. Biofuel Policy: Progress and Challenges, Houston TX August 2008.
58. Powers, S.E., “Environmental and Energy Benefits of Biofuels - A Lifecycle Perspective” Oxygenates & Hydrocarbons Summit and Research Management Meeting and Great Lakes Research Consortium jointly sponsored seminar, University of Waterloo, October 2008.
59. Wormsely, A.E., S.E. Powers, “Indicators of Human Health Impacts from Ethanol and Gasoline Lifecycle Air Emissions.” Presented at the 78th Meeting of the Petroleum Environmental Research Forum (PERF) & AICHE 2008 Annual Meeting, Philadelphia PA, November 2008.
60. Powers, S.E., “Water and Soil Quality Implications Associated with Our Nation’s Biofuels Mandate.” Presented at the 78th Meeting of the Petroleum Environmental Research Forum (PERF) & AICHE 2008 Annual Meeting, Philadelphia PA, November 2008.

PRESENTATIONS (*cont.*)*Invited Seminars and Presentations (cont.)*

61. Powers, S.E., “BOK and Environmental Engineering Education.” Presented at the Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference (July 2009, Iowa City, IA).
62. Powers, S.E., “Correlating Biomass Resources with the “best” choice for energy product for local needs.” Seminar presented to the Department of Chemical and Biomolecular Engineering, Clarkson University, Potsdam NY, March, 2011.
63. Powers, S.E., “Role of Science, Technology, Engineering and Mathematics in Understanding Global Impacts of Climate Change.” Presented as part of the Climate CHANGE lecture Series at St. Lawrence University, Canton NY, March 2011.
64. Powers, S.E., “Correlating Biomass Resources with the “best” choice for energy product for local needs.” Seminar presented to the Department of Civil and Environmental Engineering, SUNY Buffalo, Amherst NY, March 2011.
65. Powers, S.E. “Watch Your Step! Calculate Your Carbon Footprint.” Workshop presented as the Moving-Planet Fellowship Speaker at the 2011 Local Living Festival - A Celebration of Resourceful Living, Canton NY, September 2011.
66. Powers, S.E., Envisioning the future of environmental engineering education: Using campus sustainability projects as experiential learning sites. Keynote presentation at the 2013 AEESP Biannual Conference, Golden CO, July 2013.
67. Powers, S.E. Changing Climate in New York State: What can you expect when you are my age? Keynote presentation at the Adirondack Youth Climate Summit, Tupper Lake NY, November 6, 2013.
68. Powers, S.E. Environmental Impacts of Energy Systems. Seminar presented to DTU Environment. Lyngby, DK, January 2014.
69. Powers, S.E., Envisioning the future of environmental engineering education: Using campus sustainability projects as experiential learning sites. Education inspiration seminar presented to DTU Environment. Lyngby, DK, March 2014.
70. Powers, S.E. “Impacts of gasoline oxygenates on groundwater pollution” Seminar presented to DTU Environment. Lyngby, DK, May 2014.
71. Powers, S.E., “LCA of alternatives for food waste management in Northern New York.” Seminar presented to DTU Environment. Lyngby, DK, June 2014.
72. DeWaters, J.E., S.E. Powers, S. Dhaniyala, “The Impact of Project-Based Climate Change Learning Experiences on Students’ Broad Climate Literacy.” AGU Annual conference, San Francisco CA, Dec. 2014.
73. Powers, S.E. Climate Change – Connecting the Scientific Dots, Presented at the Climate Change Forum – Our Shared Future, St. Lawrence University, Canton NY, Sept. 2014.
74. Powers, S.E., Envisioning the future of environmental engineering education: Using campus sustainability projects as experiential learning sites. Seminar, Dept. Civil Engineering, Syracuse NY, March 20, 2015.
75. Powers, S.E. Interdisciplinary Environmental Education: A Philosophy for Experiential Approaches. Keynote presentation at the Purdue University Center for the Environment Symposium: New Ideas for Interdisciplinary Environmental and Sustainability Education, Purdue University, March 30, 2016
76. Powers, S.E., Energy and Climate – Imperative Concepts for Tomorrow’s Engineers. Presented at Ecological and Environmental Engineering Seminar, Purdue University, March 31, 2016

PRESENTATIONS (*cont.*)*Invited Seminars and Presentations (cont.)*

77. Powers, S.E., Discussion Leader – Systems Thinking, Opportunities for Aquatic Sciences to Impact a Changing World, Environmental Sciences: Water, Gordon Research Conference. Holderness NH, June 27, 2016.
78. Powers, S.E., Defining and measuring sustainability on a college campus. Presented at the annual conference of the SUNY Environmental Health and Safety Association of NY, Lake Placid, NY, Nov. 2016
79. Powers, S.E., A.K. Sherman, A.E.S. Schay, L. Legault, S. Bird, D. Hou. Smart Housing Project: Building Systems and Student Motivation to save energy and hot water savings in campus apartments. Seminar presented at IIT Madras, Chennai India, December 21, 2017.
80. Powers, S.E., Energy and climate – Imperative concepts for tomorrow’s engineers, Seminar presented to Trottier Institute for Sustainability in Engineering and Design (TISED) at McGill University. February 22, 2018
81. Legault, L., Bird, S., & Powers, S.E. (2018, June). Impact of a motivational intervention and real-time feedback on electricity and water consumption: A smart campus field experiment. Paper presented at the International Congress on Applied Psychology, Montreal, Canada.
82. Powers, S.E., (2021, Mar) Impact of our Research – Making it Count to Support a Drive for a Sustainable Campus. Seminar (virtual), University Colorado Boulder Env. Engrg Seminar Series.
83. Berman, L., S.E. Powers, (2021, Apr) Sustainable U – NYPA-University Partnership to bring Climate Change Education to All Employees. Presented as part of Sustainable Hudson Valley Climate Conversations (April 4, 2021)
84. French, A., Powers, S.E., (2021, Nov) Reaching out to Food Waste Generators, Panel presentation at the NYSAR3 Recycling Conference, Cooperstown NY.
85. Powers, S.E., (2022, Mar) Teaching circular economy and sustainability in campuses using project based approach with case studies. Invited Keynote presentation for the “First IITM International Conference on Circular Economy for Sustainable Water Management (SuWaM 2022)”. IIT Madras, Chennai IN (virtual)

PRESENTATIONS*Conferences*

1. Powers, S.E., A.G. Collins, J.K. Edzwald, and J.M. Dietrich, "Model for the Optimization of an Ammonia Stripping Process for a Semiconductor Manufacturing Wastewater." Presented at the 58th Annual Conference - Water Pollution Control Federation, Kansas City, Missouri, October, 1985.
2. Powers, S.E., Y.M. Chen, L.M. Abriola, W.J. Weber, Jr., "The Significance of Non-Equilibrium Effects on Interphase Partitioning of Organic Contaminants in Multiphase Systems." Presented at the American Geophysical Union Fall Meeting, San Francisco, California, November, 1988.
3. Powers, S.E., C.O. Loureiro, L.M. Abriola, and W.J. Weber, Jr., "The Effects of Interphase Mass Transfer Rates on Dissolution of NAPLs in Groundwater Systems." Presented at the American Institute of Chemical Engineers Summer Meeting, Philadelphia, Pennsylvania, August, 1989.
4. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "The Effects of Interphase Mass Transfer Rates on the Extent of Aquifer Contamination of NAPLs." Presented at the 22nd Central Regional Meeting of the American Chemical Society, Saginaw, Michigan, June, 1990.

PRESENTATIONS (cont.)Conferences

5. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "Development of Phenomenological Models for NAPL Dissolution Processes." Poster presentation at the Subsurface Restoration Conference - 3rd International Conference on Groundwater Quality Research, Dallas, Texas, June, 1992.
6. Abriola, L.M., S.E. Powers, and W.J. Weber, Jr., "Investigation of the Dissolution of Nonaqueous Phase Organic Liquid Contaminants in Soils." Presented at the NATO Advanced Study Institute on Migration and Fate of Pollutants in Soils and Subsoils, Basilica, Italy, June, 1992.
7. Dekker, T.J., L.M. Abriola, and S.E. Powers, "Implications of Rate-Limited NAPL-Water Mass Transfer Processes on Two-Dimensional Field-Scale Remediation Efforts." Presented at the Soil Science Society of America Fall Meeting, Minneapolis, MN, November, 1992.
8. Powers, S.E., L.M. Abriola, and W.J. Weber, Jr., "A Phenomenological Model for Transient NAPL Dissolution Processes." Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December, 1992.
9. Powers, S.E., "Scholarship Integrated with Teaching in Engineering Education." Invited presentation at the Associated Colleges of St. Lawrence County conference "The Teacher Scholar - the Interaction of Research and Teaching," Potsdam, NY, November 6, 1993.
10. Powers, S.E., and M.E. Tamblin, "Porous Media Wettability after Exposure to Complex NAPLs." Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December, 1993.
11. Tamblin, M.E., and S.E. Powers, "Porous Media Wettability Following Exposure to Synthetic Gasoline." Presented at the New York Water Environment Federation Annual Meeting, New York, NY, January, 1994.
12. Powers, S.E., and M.E. Tamblin, "The Wettability of NAPL Contaminated Soils." Poster presented at the Gordon Research Conference - Environmental Sciences, New Hampton, NH, June 19-24, 1994.
13. Powers, S.E., and M.E. Tamblin, "The Wettability of NAPL Contaminated Soils." Presented at the Ninth Annual Conference on Contaminated Soils, Amherst, MA, October 17-20, 1994.
14. Powers, S.E., "Graphical Tools for Characterizing NAPL Spill Sites." Presented at the 5th Waste-management Education and Research Consortium Technology Development Conference, Las Cruces, NM, April, 19-21, 1995.
15. Zander, A.K., S.E. Powers, and N.L. Ackermann, "The Advantages and Organization of Interdisciplinary Design Projects." Presented at the American Society of Engineering Education Annual Conference, Anaheim, CA, June, 1995.
16. Ripp, J., J. Villaume, and S. Powers, "Application of Geochemical Principles to the Investigation of DNAPL Contamination at MGP Sites." Presented at MGP'95: First International Symposium on the Clean-up of Manufactured Gas Plants, Prague, Czech Republic, September, 1995.
17. Keat, W., S. Powers, E. Thacher, and A. Zander, "Team-Based Design Competitions in Engineering Curricula." Presented at ASEE St. Lawrence Section 1995 Conference: Preparing for the 21st Century, Schenectady, NY, September, 1995.
18. Powers, S.E., "Understanding the Nature of NAPL Pollution Sources: Improving Analysis of Groundwater Data." Presented at the Water Environment Federation 68th Annual Conference, Miami, FL, October, 1995.
19. Gierke, J.S., and S.E. Powers, "In Situ Groundwater Treatment Technologies: Increased Implementation Through Results of Field Scale Performance Assessments." Presented at the Water Environment Federation 68th Annual Conference, Miami, FL, October, 1995.
20. Powers, S.E., and A.K. Zander, "Multidisciplinary Projects: Environmental Restoration." Invited presentation at the Associated Colleges Conference - Teaching Effectiveness and Multidisciplinary Learning, Potsdam, NY, November, 1995.

PRESENTATIONS (cont.)Conferences

21. Powers, S.E., and *G.W. Curry, Jr.*, "Analysis of Processes Governing the Dissolution of NAPLs Entrapped in Heterogeneous Systems." Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December, 1995.
22. Manivannan, *I.*, *A.K. Sutherland*, and S.E. Powers, "Image Analysis for Estimating the Saturation of NAPLs in Heterogeneous Porous Media." Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December, 1995.
23. Anckner, *W.H.*, and S.E. Powers, "The Impact of Nonaqueous Phase Liquids on Soil Wettability." Presented at the New York Water Environment Association Annual Conference, New York, NY, January 1996.
24. Powers, S.E., *A.K. Zander*, *M. Reardon*, and *M. Abatto*, "Stabilization of a Solar Pond Sludge for Land Disposal." Presented at the Waste Management '96 Conference, Tucson, AZ, February 1996.
25. Moosbrugger, J.C., S.E. Powers, and *A.K. Zander*, "Student Design Proposal for Mechanical Mobilization and Retrieval of Radioactive Wastes from Underground Storage Tanks." Presented at the Waste Management '96 Conference, Tucson, AZ, February 1996.
26. Anckner, *W.H.*, and S.E. Powers, "Effects of Petroleum Products on Soil Wettability." Presented at the ACS Symposium: Petroleum Contamination in the Environment: Assessment and Remediation, New Orleans, March 1996.
27. Heermann, *S.E.*, and S.E. Powers, "The Dissolution of BTEX Compounds from Oxygenated Gasoline." Presented at the ACS Symposium: Petroleum Contamination in the Environment: Assessment and Remediation, New Orleans, March 1996.
28. Young, T.C., S.E. Powers, A.G. Collins, and N.L. Ackermann, "A Unified Concentration in Environmental Engineering." Presented at the ASEE Annual Conference: Investing in the Future, Washington D.C, June 1996.
29. Zander, A.K., and S.E. Powers, "Underground Storage Tank Remediation: A Student Design Project." Presented at the 4th International Congress on Environmentally Conscious Design and Manufacturing, Cleveland, OH, July 1996.
30. Powers, S.E., "Laboratory Exercise: Partitioning of Solutes between Environmental Compartments." Poster presented at the AAEE/AEEP Environmental Engineering and Practice Conference, Orono, ME, August 1996.
31. Zander, A.K., S.E. Powers, and S.J. Grimberg, "Underground Storage Tank Remediation." Presented at the I&EC Division of ACS Special Symposium: Emerging Technologies in Hazardous Waste Management, VII, Birmingham, AL, September 1996.
32. Anckner, *W.H.*, and S.E. Powers, "Relating the Wettability of Contaminated Sands to NAPL Composition." Presented at the ASCE Symposium: NAPLs in the Subsurface Environment: Assessment and Remediation, Washington DC, November 1996.
33. Manivannan, *I.*, S.E. Powers, and *G.W. Curry*, "Dissolution of NAPLs Entrapped in Heterogeneous Subsurface Systems." Presented at the ASCE Symposium: NAPLs in the Subsurface Environment: Assessment and Remediation, Washington DC, November 1996.
34. Heermann, *S.E.*, and S.E. Powers, "Modeling Cosolvency Effects on BTEX Partitioning from Reformulated Gasolines." Presented at the ACS Symposium: Environmental Fate and Effects of Gasoline Oxygenates, San Francisco, CA, April 1997.
35. Powers, S.E., "Important Factors Associated with Successful Undergraduate Student Research Projects." Presented at the ASEE – St. Lawrence Section Annual Conference, Utica NY, October 1997.
36. Heermann, *S.E.*, and S.E. Powers, "Multicomponent Mass Transfer Between a Gasoline Containing Ethanol and Ground Water." Presented at the AGU Fall Meeting, San Francisco CA, December 1997.

PRESENTATIONS (cont.)Conferences

37. Davis, S.W., and S.E. Powers, “Adsorption of Methyl tert-Butyl Ether from Groundwater.” Presented at the New York Water Environment Association Annual Meeting, New York, February 1998.
38. Grimberg, S., S.E. Powers, and A.K. Zander, “Environmental Restoration Design Competition: Six Years of Participation by Clarkson University Students.” Presented at the ASEE – St. Lawrence Section Annual Conference, Binghamton NY, April 1998.
39. Nambi, I.M., and S.E. Powers, “Simplified Lab-Scale Experiments to Quantify DNAPL Dissolution in Heterogeneous Systems.” Presented at the First International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, May 1998.
40. Powers, S.E., J. Zheng, and D.A. Hugaboom, “NAPL Acid and Base Concentrations and Their Influence on the Wettability of Sand Particles.” Presented at the 72nd ACS Colloid and Surface Science Symposium, University Park PA, June 1998.
41. Zheng, J., and S.E. Powers, “Correlation between Quartz Wettability and its Water Film Stability – A Case Study of DLVO Theory.” Presented at the 72nd ACS Colloid and Surface Science Symposium, University Park PA, June 1998.
42. Morshed, J., and S.E. Powers, “Regression and Dimensional Analysis for Two-Phase Flow Modeling.” Presented at Enviromeet '98, Irvine CA, July 1998.
43. Powers S.E., and S.W. Davis, “Alternative Sorbents for Removing MTBE from Gasoline-Contaminated Groundwater” Poster presented at the Northeast Groundwater Focus Conference, Burlington VT, October 1998.
44. Nambi, I.M., and S.E. Powers, “Measuring and Modeling Local Mass Transfer Rates in Heterogeneous Saturated Subsurface Systems.” Presented at the AGU Fall Meeting, San Francisco CA, December 1998.
45. Furnans, J.E., S.E. Powers, and C.A. Peters, “The Wettability of Various Minerals Exposed to Nonaqueous Phase Liquids.” Poster presented at the AGU Fall Meeting, San Francisco CA, December 1998.
46. Zheng, J., and S.E. Powers, “Modeling Adhesion of NAPLs to Quartz with DLVO Theory.” Presented at the 73rd ACS Colloid and Surface Science Symposium, Cambridge MA, June 1999.
47. Powers S.E., T.L. Theis and H.A. Grimes, “A New Paradigm for Doctoral Research in Environmental Manufacturing Management.” Poster presented at the AEESP Research Frontiers in Environmental Engineering Conference, Pennsylvania State University, August 1999.
48. Tornatore, P.M., S.E. Powers, E.G. Isacoff, “Emerging Treatment Options for MTBE – Synthetic Adsorbents.” Presented at the 48th CPI Exposition, New York City November 16-18, 1999.
49. Heermann, S.E., and S.E. Powers, “Gasohol in the Subsurface: Ethanol Transport through a Gasoline Pool via Free Convection.” Poster presented at the AGU Fall Meeting, San Francisco CA, December 1999.
50. Geise, S., and S.E. Powers, “Recovery of Coal Tars and Creosotes in Aquifer Systems by Polymer Flooding.” Presented at the New York Water Environment Association Annual Meeting, New York, February 2000.
51. Tornatore, P.M., S.E. Powers, and W.J. Cooper, “Emerging Treatments for MtBE: Synthetic Adsorbents and High Energy Electron Injection.” Presented at the Battelle International Conference on Remediation of Chlorinated and Recalcitrant Compounds in Aquifer Systems, Monterey CA, May 2000.
52. Giese, S.W. and S.E. Powers, “Polymer Flooding for Improved Recovery of Coal Tars and Creosotes in Aquifer Systems.” Presented at the 32nd Mid-Atlantic Industrial and Hazardous Waste Conference, Troy NY, June 2000.

PRESENTATIONS (cont.)Conferences

53. Tornatore, P.M., S.E. Powers, and W.J. Cooper, “Emerging Treatments for MtBE: Synthetic Adsorbents and High Energy Electron Injection.” Presented at the 32nd Mid-Atlantic Industrial and Hazardous Waste Conference, Troy NY, June 2000.
54. Damstedt, B.G., and S.E. Powers, “The Effect of DNAPL-Quartz Electrostatic Attraction on Wettability Alteration.” Presentation at the 14th National Conference on Undergraduate Research (NCUR 2000), Missoula MT, April 27-29, 2000.
55. Grimberg, S.J., S.E. Powers, M. Denham, K. Chen, “Field Study to Correlate Chlorinated Solvent Concentrations and Microbial Distributions in the Unsaturated Zone.” Presented at the ACS Symposium: Chemical-Biological Interactions in Contaminant Fate, Washington DC, August 2000.
56. Heermann, S.E., and S.E. Powers, Subsurface Fate of Ethanol as a Gasoline Oxygenate – The Alternative to MTBE, Presented at the 2000 FOCUS Conference on Eastern Ground Water Issues, Newburgh NY, October 2000.
57. Heermann, S.E., and S.E. Powers, Ethanol in Gasoline: Will this MTBE alternative also create groundwater hazards? Presented at 45th Annual Midwest Ground-Water Conference, Columbus OH, Oct. 2000.
58. Nambi, I.M., and S.E. Powers, “A New Mass Transfer Correlation for NAPL Dissolution in Heterogeneous Subsurface Systems.” Poster presented at the Annual Meeting of the Geological Society of America, Reno NV, Nov. 2000.
59. Lavigne, A., and S.E. Powers, “Life Cycle Issues Associated with Ethanol Use as a Gasoline Additive.” Presented at the Clarkson-NSF Symposium on Sustainability. Potsdam NY, June, 2001.
60. Ahmadi, A., B. Williamson, T.L.Theis, and S.E. Powers, “Lifecycle Assessment of Toner Manufacturing Processes.” Presented at the Clarkson-NSF Symposium on Sustainability. Potsdam NY, June, 2001.
61. Cianci, J., S.I. Hwang and S.E. Powers, “Photo-visualization Study Illustrating the Effects of Interfacial Properties on Multiphase Flow in Glass Bead Micromodels.” Poster presented at the Spring Annual Meeting of the American Geophysical Union. Boston MA, June, 2001.
62. McDowell, C., S. Albers, and S.E. Powers, “Migration of Petroleum Pools Following an Ethanol Spill.” Presented at the Spring Annual Meeting of the American Geophysical Union. Boston MA, June, 2001.
63. Hwang, S.I., and S.E. Powers, “Using a Multi-step Outflow Technique to Estimate k-S-P Parameters for Contaminated Solutions.” Poster presented at the Spring Annual Meeting of the American Geophysical Union. Boston MA, June, 2001.
64. Powers, S.E., “Subsurface Fate of Ethanol as a Gasoline Oxygenate.” Presented at the 17th Annual International Conference on Contaminated Soils, Sediments and Water, Amherst MA, October, 2001.
65. Ahmadi, A., B. Williamson, T.L. Theis, S.E. Powers. “Lifecycle Assessment of a Toner Manufacturing Process.” Poster presented at the annual meeting of the International Society of Industrial Ecology - The Science & Culture of Industrial Ecology, Leiden, Netherlands, November, 2001.
66. Powers, S.E., C. McDowell, “Mechanisms Affecting the Infiltration and Redistribution of Ethanol-Blended Gasoline in the Vadose Zone.” Presented at the NGWA/API Petroleum Hydrocarbons Conference, Houston TX, November, 2001.
67. Hwang, S.I., and S.E. Powers, “Using a Multi-Step Outflow Technique to Estimate Unsaturated Hydraulic Conductivity Function for Quartz Sands With Variable Interfacial Properties.” Presented at the AGU Fall Meeting, San Francisco CA, December 2001.
68. Link, A.N., S.J. Grimberg and S.E. Powers, “The Impact of Interfacial Properties in NAPL-Water-Mineral Systems on Bacterial Adhesion.” Presented at the 102nd General Meeting of the American Society of Microbiologists, Salt Lake City UT, May 2002.

PRESENTATIONS (cont.)Conferences

69. Doty, T.D., S.E. Powers, S.J. Grimberg, "The Role of Microorganisms of DNAPL Interfacial Properties and Transport". Presented at the 3rd International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 2002.
70. Lavigne, A.S. and S.E. Powers. "Out Of The Landfill And Into The Tank: Producing Fuel Ethanol From Waste Materials." Poster presentation at the 2002 Gordon Research Conference on Industrial Ecology, New London NH, June 2002.
71. Graham, M., A. Aeschbacher, J. DeWaters, and S.E. Powers. "Gender Differences in Engineering Pay Expectations Among Middle Schoolers." Presented at the ASEE Annual Conference, Montreal Ont. June 2002.
72. Powers, S.E., and A.G. Collins, "Clarkson's K-12 Project-Based Learning Partnership Program." Presented at the Eastern States Chief Academic Officers Conference, Binghamton NY, June 2002.
73. Omrane, K., S.E. Powers, S.J. Grimberg, "Factors contributing to the low interfacial tension of the Savannah River DNAPL." Presented at the 76th ACS Colloid and Surface Science Symposium, Ann Arbor MI, June, 2002.
74. Lavigne, A.S. and S.E. Powers, "From Concrete to Compost: Teaching Sustainability in the Classroom." Poster presentation at the AEESP/AEE Research and Education Conference, Toronto CA, August 2002.
75. Powers, S.E. and A.S. Lavigne, "A Framework for Estimating the Lifecycle Energy Value of Alternative Transportation Fuels." Presented at the AEESP/AEE Research and Education Conference, Toronto CA, August 2002.
76. Chen, M., A. Link; S.J. Grimberg, and S.E. Powers, "The Impact of Growth Stages and Carbon Sources on Bacterial Transport in a NAPL-Water-Mineral System." Presented at the American Chemical Society Summer Meeting, Boston MA, August 2002.
77. Powers, S.E., "Quantifying the Flux of Ethanol to Groundwater after a Gasohol Spill." Presented at the National Ground Water Association Conference on Fuel Oxygenates in the Environment. Baltimore MD, June 6-7, 2003.
78. Powers, S.E., "Preparing College Students to Teach an Environmental Problem Solving Curriculum to Middle School Students." Presented at the Annual Meeting of the American Society of Engineering Educators, Nashville TN, June 22-25, 2003.
79. Powers, S.E., "Diversity in K-12 Initiatives to Attract a Diverse Pool of Engineering Students." Presented at the Frontiers in Education Conference, Boulder CO November 5-8, 2003.
80. Powers, S.E., Omrane, K., Dou, W., and Grimberg S.J., Unique Interfacial Properties of the Chlorinated Solvent DNAPL at Savannah River National Laboratory. Presented at the American Chemical Society National Meeting, Anaheim CA, March 30, 2004.
81. Turner, P. J., Dewaters, S.E. Powers, E. Oey, "Environmental Projects in Math, Science and Technology Middle and High School Classes," SIAM National Meeting, Teachers Day, Portland OR, July 2004.
82. Powers, S.E., "Cradle to farm gate lifecycle inventory and water quality impacts associated with nutrients used for corn, soy, and stover biomass feedstocks." AIChE Annual Conference, Austin TX, November 12, 2004.
83. Bertrand, L.J., S.J. Grimberg, S.E. Powers, M. Denham, T.D. Doty, "Microbial Heterogeneity in the Subsurface and its Effects on DNAPL Interfacial Properties" Poster presented at the annual AGU conference, San Francisco CA Dec. 14, 2004.
84. Powers, S.E., "Preparing for the Hydrogen Economy – An integrated MST curriculum." National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology Professional Conference, Washington University in St. Louis, March, 2005.

PRESENTATIONS (cont.)Conferences

85. Dou, W., S.E. Powers, “Colloids Partitioning between Organic and Aqueous Phase Cause the Low Interfacial Tension of DNAPL. Presented at the ACS Colloids and Surfaces Conference, Clarkson University, Potsdam NY, June 2005.
86. DeWaters, J., S.E. Powers, “A Project-based Learning Approach for Teaching Current Energy Topics in a Middle School Classroom,” 2005 AEESP Research and Education Conference, Clarkson University, Potsdam NY, July, 2005.
87. Lavigne, A., S.E. Powers, “Demonstrating the value of utilizing waste biomass feedstocks for fuel ethanol production from energy policy perspectives.” Poster presented at the 2005 ASEESP Research and Education Conference, Clarkson University, Potsdam NY, July, 2005.
88. Bertrand, L.J., S.J. Grimberg, S.E. Powers, T.D. Doty, M. Denham, “Microbial Heterogeneity in the Subsurface and its Effects on DNAPL Interfacial Properties.” Poster presented at the 2005 ASEESP Research and Education Conference, Clarkson University, Potsdam NY, July, 2005.
89. Richards, M., J Cook, G. Ahmadi, S.E. Powers, D.H. Smith, “Multiphase Flow through Porous Media with Application to CO₂ Sequestration. Presented at the 2005 AAAR Conference, Austin TX October, 2005.
90. Agogino, A.M., L.H. Jamieson, D.F. Ollis, H.V. Poor, S.E. Powers, and C. Rogers, “Integrating Education, Research, and Outreach: Exemplars from the NSF Distinguished Scholars Program.” Panel presented at the Frontiers in Education Conference, Indianapolis IN, October, 2005.
91. Negrón Vázquez, S., S.E. Powers, “Fate of Water-in-Oil Emulsified Diesel Fuel in Groundwater Systems.” Presented at the 2006 NYWEA Conference, New York City, February 2006.
92. Zhang, C., S.E. Powers, “Water Quality Impacts Associated with Corn Stover Harvest for Energy Production.” Presented at the 2006 NYWEA Conference, New York City, February 2006.
93. Dou, W., S.E. Powers, “Mechanisms Contributing to Low DNAPL-Water Interfacial Tension (IFT).” Presented at the 2006 NYWEA Conference, New York City, February 2006.
94. DeWaters, J.E., S.E. Powers, “Improving Science and Energy Literacy through Project-Based K-12 Outreach Efforts.” Presented at the 2006 ASEE National Conference, Chicago IL, June 2006.
95. DeWaters, J.E., S.E. Powers, “Partners in Engineering: Outreach efforts provide holistic engineering education for middle school girls.” Presented at the 2006 ASEE National Conference, Chicago IL, June 2006.
96. DeWaters, J.E., S.E. Powers, “WIP: A Pilot Study to Assess the Impact of a Special Topics Energy Module on Improving Energy Literacy of High School Youth” Presented at the 2006 ASEE/IEEE Frontiers in Education Conference, San Diego CA, October 2006.
97. DeWaters, J.E., S.E. Powers, “Developing an Energy Literacy Scale.” Presented at the 2007 ASEE National Conference, Honolulu HI, June, 2007.
98. Powers, S.E., A. Lavigne, “Lifecycle Energy and Environmental Consequences of the Proposed New “Ethanol Economy.” Presented at the 2007 AEESP Research and Education conference, Blacksburg VA, July 2007.
99. DeWaters, J.E., S.E. Powers, “Improving Energy Literacy through Project-based, STS-influenced Educational Programs.” Poster presented at the 2008 Annual Meeting of the American Association for the Advancement of Science (AAAS): Science and Technology from a Global Perspective, Boston, MA, Feb. 2008.
100. Powers, S.E., B. Brydges, P. Turner, G. Gotham, J. Carroll, D. Bohl, “Successful Institutionalization of a K-12 - University STEM Partnership Program.” Presented at the 115th Annual ASEE Conference & Exposition, Pittsburgh PA, June, 2008.

PRESENTATIONS (cont.)Conferences

101. Powers, S.E., L. Ascough, R. Nelson, “Soil and Water Quality Implications Associated With Corn Stover Removal and Herbaceous Energy Crop Production in Iowa.” Presented at the 2008 Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE) – special session on Bioenergy, Providence RI, July 2008.
102. Venczel, M., S.E. Powers “Agricultural Energy Recovery: Environmental Benefits of Dairy Manure Anaerobic Digestion.” Poster presented at the 2008 Gordon Conference on Industrial Ecology, Holden NH, August 2008.
103. Lavigne, A., S.E. Powers, “The "Garbage" Metric: Understanding the Energy Value of Biomass Wastes.” Poster presented at the 2008 Gordon Conference on Industrial Ecology, Holden NH, August 2008.
104. DeWaters, J., S.E. Powers, “Energy Literacy among Middle and High School Youth.” Presented at the 36th ASEE/IEEE Frontiers in Education Conference (Saratoga Springs NY, Oct 2008)
105. Kusiima, J., S.E. Powers, “Monetary Valuation of the Environmental and Health Externalities of Producing Ethanol from Different Feedstocks.” Presented at the NYWEA annual conference (New York NY, February 2009).
106. Baliga, R., S.E. Powers, “Life cycle impact assessment of biodiesel production from microalgae.” Presented at the NYWEA annual conference (New York NY, February 2009) (received 3rd place award for student presentation).
107. Deng, Y., S.E. Powers, S.J. Grimberg, “Separation of bedding sand from dairy manure to enable anaerobic digestion.” Poster presented at the NYWEA annual conference (New York NY, February 2009).
108. Zhang, Y., R. Narula, S.J. Grimberg, S.E. Powers. “Feasibility to reuse recycled bedding sand at dairy farms.” Presented at 19th annual Great Lakes Research Consortium Student/Faculty Conference. (Syracuse, NY, March 13-14, 2009).
109. Kusiima, J., S.E. Powers, Monetary valuation of the environmental and health externalities associated with ethanol produced from different feedstocks. Poster presented at the Engineering Sustainability 2009 Conference (April 19-21, 2009, Pittsburgh, PA).
110. Burken, J.G., Dominguez-Faus, R., Powers, S.E., and Alvarez, P.J. "50 Gallons per Mile? What is the Water Footprint of Biofuels?" Missouri Energy Summit, (Columbia MO, April 23 – 24. 2009).
111. DeWaters, J.E., S.E. Powers, “SOLAR 2009: Development and use of an energy literacy survey.” Presented at the *SOLAR 2009 Conference*, 38th Annual meeting of the American Solar Energy Society (May 11-16, 2009, Buffalo, NY).
112. DeWaters, J.E., and S.E. Powers, “Using a Real-world, Project-based Energy Module to Improve Energy Literacy among High School Youth.” Presented at the 116th Annual ASEE Conference & Exposition, (Austin, TX, June 14-17, 2009).
113. Venczel, M.C., *N.L. de Juvigny, J. Kusiima*, S.E. Powers, “Environmental Impacts and Costs for Manure Management with and without Anaerobic Digestion for Heat and Power.” To be presented at the 2009 American Society of Agricultural and Biological Engineers annual international meeting (Session SE-25, Reno NV, June 2009).
114. Powers, S.E., *J. Kusiima, N.L. de Juvigny, M. Venczel*. “Environmental Costs of Nitrogen Emissions for Bioenergy Systems.” Presented at the Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference (July 2009, Iowa City, IA).

PRESENTATIONS (cont.)Conferences

115. DeWaters, J.E., S.E. Powers, “Energy Education Programs Needed to Improve Energy Literacy in Middle and High School Levels.” Presented at the Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference (July 2009, Iowa City, IA).
116. Venczel, M.C., S.E. Powers, “Life cycle assessment of alternative energy sources: A case study of anaerobic digestion.” Poster presented at the Environmental Monitoring, Evaluation, and Protection in New York: Linking Science and Policy, (Albany NY, Oct. 2009)
117. Brouwer, A., S.E. Powers, S.J. Grimberg, “Assessing the economic viability of anaerobic digesters through mathematical models.” Poster presented at the Environmental Monitoring, Evaluation, and Protection in New York: Linking Science and Policy, (Albany NY, Oct. 2009)
118. DeWaters, J.E., S.E. Powers, “Work in Progress: Energy education and energy literacy: the benefit of reaching a high level of educational rigor and relevance.” Presented at the 37th ASEE/IEEE Frontiers in Education Conference (San Antonio, TX, Oct. 2009).
119. Burken, J.G., Dominguez-Faus, R., Powers, S.E., and Alvarez, P.J. “Water Footprint of Biofuels: A Drink or Drive Issue?” 2009 Midwest Ground Water Conference (Plenary Talk) (St. Louis MO, Oct. 2009).
120. Cook, B., S.E. Powers, “Assessment of Energy and Environmental Impacts from Utilizing Northern New York Biomass as a Domestic Heating Pellet Fuel.” Thousand Islands Energy Research Forum (Alexandria Bay, NY, Oct. 2009)
121. DeWaters, J.E., S.E. Powers, “The Energy Literacy Assessment Project.” Presented at the 2009 Behavior, Energy & Climate Change Conference (Washington, D.C Nov. 2009). available online at <http://www.aceee.org/conf/09becc/PPT%20Presentations/5E%20DeWaters.pdf>.
122. Kennedy, S., M.M. Small, E. Kirnie, S.E. Powers, Clarkson GK-12 Fellows Bring Engineering to Life.” Poster Presented at the GK12 Special Focus Meeting of the AAAS Annual Conference (San Diego CA, Feb. 2010).
123. Venczel, M.Z., S.E. Powers, “Anaerobic Digestion and Related Best Management Practices: Utilizing Life Cycle Assessment.” Presented at the XVIIth World Congress on the International Commission of Agricultural Engineering (Quebec City, June 2010).
124. Powers, S.E., “Sustainable Transportation Fuels Project-Based Unit for High School Science Classes.” Presented at the ACS NERM 2010 K-12 Education Symposium (Potsdam NY, June 2010).
125. Powers, S.E., B. Bridges, J.E. DeWaters, G. Gotham, M.M. Small, P. Turner, “K-12 Teacher Professional Development Effectively Offered by STEM Faculty from a Research University.” Presented at the 117th Annual ASEE Conference & Exposition (Louisville KY, June 20-23, 2010).
126. Venczel, M.Z., S.E. Powers, “Assessing environmental impacts and pollution trade-offs of dairy manure management from a life-cycle perspective.” Presented at the 2010 ASABE Annual International Meeting (Pittsburgh PA, June 2010).
127. Cook, B.M., S.E. Powers, “A comparative energy and greenhouse gas emission assessment of bioethanol and residential pellet fuel produced from willow crops grown in New York State.” Presented at the 2010 ASABE Annual International Meeting (Pittsburgh PA, June 2010).
128. Gonyer, D., S.E. Powers, Optimizing Year-round Food Production in Cold Climates via Controlled Environment High-Rise Farm: Design with Environmental and Economic Sustainability Factors. Presented at the Northeast Agricultural/Biological Engineering Conference (Geneva NY, July 2010) (received 1st place award in the Graduate Student Presentation competition).

PRESENTATIONS (cont.)Conferences

129. Cook, B., S.E. Powers, Energy and environmental impacts from the utilization of Northern New York biomass: A comparison of ethanol and pellet fuel derived from wood. Presented at the Northeast Agricultural/Biological Engineering Conference (Geneva NY, July 2010).
130. Brouwer, A.F., S.J. Grimberg, S.E. Powers, E.F. Thacher, A Dynamic, Systems Approach to Modeling Anaerobic Digester Systems. Presented at the Northeast Agricultural/ Biological Engineering Conference (Geneva NY, July 2010).
131. Powers, S.E., J.E. DeWaters, “Sustainable Vehicle Project-Based Unit to Improve Energy Literacy among High School Youth. Presented at the NAAEE Annual Conference (Oct. 2010, Buffalo NY)
132. DeWaters, J.E., S.E. Powers, “The Energy Literacy Assessment Project.” Presented at the NAAEE Annual Conference (Oct. 2010, Buffalo NY).
133. Powers, S.E., S. Dhaniyala J.E. DeWaters, M.M. Small, “Teaching Climate Science and Policy to Engineering Students.” Presented at the 118th Annual ASEE Conference & Exposition (Vancouver BC, June 2011).
134. Powers, S.E., B. Cook, “Correlating Biomass Resources with the best Choice in Energy Product for Local Needs.” Presented at the Biannual AEESP Conference (Tampa FL, July 2011).
135. Powers, S.E., D. Gonyer, “Controlled Environment High Rise Farming for Local Food Production in Cold Climates.” Presented at the Biannual AEESP Conference (Tampa FL, July 2011).
136. Gonyer, D., Powers, S.E., “Controlled Environment High Rise Farming for Local Food Production in Cold Climates.” Presented at the Northeast Agricultural/ Biological Engineering Conference (Burlington VT, July 2011).
137. DeWaters, J.E., Powers, S.E. “Improving Energy Literacy among Middle School Youth with Project-based Learning Pedagogies.” Presented at the 41th ASEE/IEEE Frontiers in Education Conference, (Rapid City SD, October 2011).
138. Powers, S.E., D. Gonyer, “Campus Greenhouse Provides Local Food and Opportunity to Research Production in Cold Climates.” Presented at the AASHE Annual Conference (Pittsburgh PA, October 2011).
139. Dhaniyala, S., Powers, S.E., “Climate Change Education for Engineering Undergraduate Students” Presented at the 2011 Fall Meeting of the American Geophysical Union (San Francisco CA, December 2011).
140. Gonyer, D., Jones, S., Grimberg, S.J., Powers, S.E. "The role of renewable energy in an integrated food and waste management system" Presented at 2012 International Capstone Design Contest on Renewable Energy Technology. (February 13 – 14, 2012, Mokpo, Korea)
141. Gilbraith, N., Powers, S.E. “Quantifying the Reduction in Emissions of Oxides of Nitrogen due to Residential Dynamic Pricing,” Presented at the 2012 IEEE PES Transmission and Distribution Conference (May 7-10, 2012, Orlando, Florida).
142. Gilbraith, N., Powers, S.E., “The Effects of Time-Varying Electricity Tariffs on Emissions in New York City,” Poster presented at the Eighth Annual Conference on Long Island Systems, Applications and Technology (IEEE LISAT2012) (May 2012, Farmingdale, New York).
143. Gilbraith, N., Powers, S.E., “The Impact of Time-Varying Prices on Nitrogen Oxide and Particulate Matter Emissions in New York City” Presented at the National Town Meeting on Demand Response and Smart Grid, Association for Demand Response and Smart Grid (June 26-28, 2012, Washington DC).

PRESENTATIONS (cont.)Conferences

144. Powers, S.E., Service Learning and Campus Operations: Student projects to Integrate Food, Food Waste and Energy Production at Clarkson. Presented at the workshop on Service-Learning and Sustainability: Avenues for Collaboration, Hobart and William Smith Colleges (July 20, 2012, Geneva, NY).
145. Powers, S.E., Cold-climate Greenhouse and Food Digester Provide Education and Research Opportunities While Greening the Campus. Presented at the International Greening Education Event, (Oct. 2012, Karlsruhe Germany).
146. Powers, S.E., S. Dhaniyala, J.E. DeWaters, M.M. Small, Preparing teachers to address climate change with project-based instructional modules. Presented at the 45th Annual AGU Fall Meeting (Dec. 2012, San Francisco)
147. DeWaters, J.E., S.E. Powers, S. Dhaniyala, M.M. Small, Evaluating Changes in Climate Literacy among Middle and High School Students who Participate in Climate Change Education Modules. Poster presented at the 45th Annual AGU Fall Meeting (Dec. 2012, San Francisco).
148. Dhaniyala, S., S.E. Powers, J.E. DeWaters A Climate Change Course for Engineering Undergraduate Students. Poster presented at the 45th Annual AGU Fall Meeting (Dec. 2012, San Francisco).
149. Powers, S.E., Closing the loop: New technologies to integrate local food production and food waste management. TEDx Conference, Clarkson University, Potsdam NY, April 2013.
150. Powers, S.E., S. Dhaniyala, J.E. DeWaters, M.M Small, New project-based instructional modules improve climate literacy (research to practice). Presented at the 120th Annual ASEE Conference & Exposition, Atlanta GA, June 2013.
151. Powers, S.E., S.J. Grimberg, Cold-climate Greenhouse and Food Waste Digester Provide Education and Research Opportunities While Greening the Campus. Presented at the 120th Annual ASEE Conference & Exposition, Atlanta GA, June 2013.
152. Sherman, A., Swanson, C., Legault, L., Bird, S., Powers, S.E. “Smart Housing Project: Motivating resource conservation through infrastructure, real-time feedback, & education.” Poster presented at the Syracuse COE Annual Meeting, October, 2013.
153. Brabant, V., S.E. Powers, Nutrient Recovery from Anaerobic Digested Food Effluent for Use as Fertilizer. Presented at the New York Water Environment Association Annual Meeting. New York City, February 2014.
154. Sherman, A., M. Bayer, A. Schay, L. Legault, S. Bird, S.E. Powers, “Smart Housing Project: Motivating resource conservation through real-time feedback & education” Presented at the AAAS meeting, NYC, June 2014.
155. French, A.J., S. Bird, S.E. Powers, Should Higher Education Go Carbon Neutral: Examining Forest Carbon, presented at the 2014 NAAEE Conference, Ottawa, ON Oct. 9-11, 2014.
156. Powers, S.E., D. Hou, S. Bird, L. Legault, K. Janoyan, A.K. Sherman, A. Rowe, A.E.S. Schay, Smart Housing Project: Measuring Use and Motivating Change. Presented at the 2014 AASHE Conference, Portland OR, Oct. 26-28, 2014.
157. French, A.J., S. Bird, S.E. Powers, Should Higher Education Go Carbon Neutral: Examining Forest Carbon, Presented at the 2014 AASHE Conference, Portland OR, Oct. 26-28, 2014
158. Sherman, A.K. Rowe, A.J., Bird, S., Legault, L., Powers, S.E., Sociopolitical and motivational precursors to pro-environmental behavior. Presented at the Thousand Islands Energy Research Forum, Ottawa Ont., Oct. 2014.

PRESENTATIONS (cont.)Conferences

159. Nikdel, L., S.E. Powers, K. Janoyan, D. Hou, A. Schay, M. Bayer. "Building Energy Modeling for Clarkson's Smart Housing Project" Poster presented at the 14th Annual Syracuse COA Symposium - Advanced Building Innovations: Integrating Systems for Efficiency, Quality and Resilience, Syracuse NY October 16, 2014.
160. DeWaters, J.E., S.E. Powers, and S. Dhaniyala. "The Impact of Project-Based Climate Change Learning Experiences on Students' Broad Climate Literacy." Presented at the 2014 Fall Meeting of the American Geophysical Union (AGU), San Francisco, CA, December 15-19, 2014. Paper number ED32A-05.
161. Powers, S.E., D. Hou, K. Janoyan, S. Bird, L. Legault, A. Sherman, A.E.S. Schay, L. Nikdel, A. Rowe Clarkson's Smart Housing Project: Highly-granular utility use data for Smart Buildings and Smart Residents. Presentation at the 13th Annual New York State Green Building Conference, March 12-13, 2015, Liverpool NY
162. Powers, S.E., D. Hou, K. Janoyan, S. Bird, L. Legault, A. Sherman, A.E.S. Schay, L. Nikdel, A. Rowe Clarkson's Smart Housing Project: Highly-granular utility helps us to understand student utility use, Presented at the North Country-Mohawk valley Clean Energy Economy Conference, Utica NY, June 2015.
163. Sherman, A.K., Schay, A.E.S., Bird, S., Powers, S.E., Legault, L. Impact of a Motivational Intervention and Real-Time Feedback on Electricity and Water Consumption: A Smart Campus Field Experiment. Paper presented at the SPSP (Society for Personality and Social Psychology) Conference, San Antonio, TX. Jan. 2017.
164. Sherman, A.K., Bird, S., Powers, S.E., Rowe, A., Legault, L. Sociopolitical and motivational precursors to proenvironmental attitudes and behavior: Implications of political ideology for smart housing, efficiency, and energy modernization. Paper presented at the Conference of the Canadian Political Science Association, Ottawa, CA. June 2015.
165. Powers, S.E., J.E. DeWaters, S.J. Grimberg, D. Hou, CLICS: Using Cyber-infrastructure to Bring Data from Campus Sustainability Efforts into the Classroom, Presented at the 2015 AEESP Biannual Conference, New Haven CT, June, 2015.
166. Sherman, A., S. Bird, S. Powers, A. Rowe, L. Legault. Sociopolitical and motivational precursors to pro-environmental attitudes and behavior: Implications of Political Ideology for Smart Housing, Efficiency, and Energy Modernization. Session: The Modernization of Energy Systems: Policy Opportunities and Challenges. Canadian Political Science Association. Ottawa Canada. June 4 2015.
167. Powers, S.E., J. Dewaters, M.M. Small, S. Grimberg, D. Hou, CLICS – Integrating Data from Campus Sustainability Projects across Disciplines. Presented at the ASEE Annual Conference, Seattle WA June 2015.
168. Powers, S.E., CLICS: Using Cyber-infrastructure to Bring Data from Campus Sustainability Efforts into the Classroom, Presented at the 2015 AASHE Conference and Expo, Minneapolis MN, Oct 25-28, 2015.
169. Powers, S.E., J.E. DeWaters, Energy and Climate – Imperative Concepts for Tomorrow's Engineers. Presented at the NCSE's 2nd National Energy Education Summit. Washington DC, June 7, 2016.
170. Sherman, A.K., Schay, A.E.S., Bird, S., Powers, S.E., Legault, L. Reducing resource consumption in student housing through feedback and motivation. Paper presented at the NYS Campus Sustainability Conference, New Paltz, NY. Nov. 2016.

PRESENTATIONS (cont.)Conferences

171. Powers, S.E., A.K. Sherman, A.E.S. Schay, L, Legault, S. Bird. Motivating students to achieve 20% electricity and hot water savings in campus apartments. Presented at the Biennial AEESP Conference, Ann Arbor MI, June 2017.
172. Powers, S.E., A.K. Sherman, A.E.S. Schay, L, Legault, S. Bird. Motivating students to achieve 20% electricity and hot water savings in campus apartments. Presented at the AASHE Conference, San Antonio TX, Oct. 2017.
173. Zeller, B., J. Martin, A. Guinta, K. Powell, Potential Community Composting for Potsdam, NY. Poster presented at the NY chapter of AIHA. April 2018.
174. Grimberg, S.J., S.E. Powers, Using a P3 funded project as part of a senior design course in environmental engineering. Regional ASEE Conference, Ithaca NY, April 2018.
175. Legault, L., Bird, S., & Powers, S.E. (2018, June). *Impact of a motivational intervention and real-time feedback on electricity and water consumption: A smart campus field experiment*. Paper presented at the International Congress on Applied Psychology, Montreal, Canada.
176. Bird, S., Hou, D., Legault, L., Powers, S.E., and York, E. (2019, January). *Data, Motivation, Feedback, Engagement, and Individuation: Next Step Challenges in Smart Housing Implementation*. Presentation at National Science Foundation (NSF) Research Coordination Network (RCN) in Science, Engineering and Education for Sustainability (SEES) International Workshop: Putting Sustainability into Convergence: Connecting Data, People, and Systems, Singapore.
177. Renschler, C.S., S.E. Powers, S. Clark, R. Shaker. (2020, Sept.). Building A Regional Network of Universities across Borders under COVID-19: Organizing Urban-rural Transects for a Sustainable Transformation of Economic PartnershipS (OUTSTEPS.org). [University Global Coalition 2020 Virtual Gathering](#): The Role of Universities in Achieving the SDGs in the New Context: Building Back; Building Bridges.
178. Miles, M., S.E. Powers, S. Clark (2020, Sept.) Education and Environmental Justice. [2020 OUTSTEPS Fall Workshop Festival](#).
179. Leary, N, R. Budowle, S.E. Powers (Apr 2022). Higher-Education and Community Partnerships for Creating Low-Carbon, Climate Resilient Communities. Presented at the Second Nature/IEN 2022 Higher Education Climate Leadership Summit (Virtual)

Workshops Presented

1. Powers, S.E., Oey, E., “Project-based learning approaches to integrate STEM in middle and high school classrooms.” Workshop presented as part of the St. Lawrence-Lewis BOCES Math Partnership Program, Canton NY, July 2005.
2. Powers, S.E., S. Scafidi-McGuire, “Energy in our Lives: Preparing middle school students for our energy future.” Workshop for teachers presented at 2006 ASEE National Conference, Chicago IL, June 2006.
3. Powers, S.E., M. Ingraham, N. Barlow. “The Hydrogen Economy: An Integrated Curriculum for MST.” Workshop for teachers presented at the SLL BOCES School Improvement and the Teachers’ Learning Center High School Science Conference. Potsdam NY, March 2007.
4. Powers, S.E., J.E. DeWaters, “Energy Efficiency: Preparing middle school students for our energy future.” Workshop for teachers presented at the 2007 ASEE Workshop on K-12 Education, Honolulu HI, June, 2007.
5. Powers, S.E., J.E. DeWaters, K. Visser. “Promoting Energy Literacy.” Four-day workshop for teachers presented as part of the St. Lawrence-Lewis BOCES STEM Partnership Program. Norwood NY, February 2008.
6. Powers, S.E., “Energy Literacy: Preparing middle school students for our energy future.” Workshop for teachers presented at the 2008 ASEE Workshop on K-12 Education. Pittsburgh PA, June, 2008.
7. Powers, S.E., “Energy Efficiency: Preparing middle school students for our energy future.” Workshop for teachers presented at the 2009 ASEE Workshop on K-12 Education. Austin TX, June, 2009.
8. Powers, S.E., J.E. DeWaters, K. Visser. “Promoting Energy Literacy.” Five-day workshop for 4th-8th grade teachers. Presented as part of the St. Lawrence-Lewis BOCES STEM Partnership Program. Norwood NY, August 2009.
9. Powers, S.E., “Energy efficiency.” Workshop for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 2009.
10. Powers, S.E., “Energy Efficiency: Preparing middle school students for our energy future.” Workshop for teachers presented at the 2010 ASEE Workshop on K-12 Education. Louisville KY, June, 2010.
11. Powers, S.E., J.E. DeWaters, S. Dhaniyala, “Project Based Climate Change Curriculum Development Institute for NYS Teachers, Clarkson University, Potsdam NY, August 2-12, 2010.
12. Powers, S.E., “Energy efficiency” Workshops for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 2010.
13. Powers, S.E., T. Morgan, L. Tedesco, A. Henry, “The NASA Approach: Project-Based Global Climate Change Curriculum.” Workshops for teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 2010.
14. Powers, S.E., S. Dhaniyala Project-Based Global Climate Change Education Curriculum Workshop, Clarkson University, Potsdam NY, August 8-12, 2011.
15. Powers, S.E., T. Morgan, NASA Sponsored Clarkson University Climate Change Curriculum Project. Franklin-Essex BOCES Teacher Professional Development Workshop. Lake Placid NY, October 20, 2011.
16. Powers, S.E., M.M. Small, A. Calderwood, “Using real-world data and inquiry projects to improve climate literacy of secondary teachers and students.” Workshop presented at the STANYS 2011 Annual Conference Rochester NY, November 5, 2011.
17. Powers, S.E., “Energy efficiency” Workshops for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 9, 2011.

PRESENTATIONS (cont.)Workshops Presented (cont.)

18. Powers, S.E., M.M. Small, “Using real-world data and inquiry projects to improve climate literacy of secondary teachers and students.” Workshop presented at the NYS STEM Conference Syracuse NY, July 12, 2012.
19. Cabe, L., S.E. Powers, S. Dhaniyala, A. Calderwood, C. Andersen, “Energy and Our Changing Earth.” One-day pre-conference workshop, STANYS 2012 Annual Conference Rochester NY, November 2012.
20. Powers, S.E., M.M. Small, “Is Climate Changing? Using Real Weather Data and Climate Model Predictions in Your Classroom.” Workshop presented at the STANYS 2012 Annual Conference Rochester NY, November 2012.
21. Powers, S.E., “Energy efficiency” Workshops for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 14, 2012.
22. Powers, S.E., S. Dhaniyala, J. Rosales, S. Bird, Climate Change – The science, policies and impacts, 4-part workshop taught to retired adults through the Potsdam SOAR program, Potsdam NY, March-April, 2013.
23. Powers, S.E., “Understanding Energy and the Carbon Footprint.” Two-day workshop for attendees of Eco-Literacy Immersion, Omega Institute, Rhinebeck NY, July 2013.
24. Powers, S.E., “Teaching climate science to engineering students: Utilizing Real-world data.” AEESP Biennial conference, Golden CO, July 2013.
25. Powers, S.E., “Understanding Energy and the Carbon Footprint” Three-day workshop for middle school teacher attendees of C-STEM Teacher Professional Development Workshop, Clarkson University, Potsdam NY, August 2013.
26. Powers, S.E., “Energy efficiency” Workshops for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 9, 2013. (repeated Nov 2014-2016)
27. Powers, S.E., “Energy efficiency” Workshops for students in the Mytholympics Summer Camp, Potsdam NY, July 12, 2016.
28. Powers, S.E., J.E. DeWaters “Creating an Energy Action Plan for your School” Workshops for students and teachers at the Adirondack Youth Climate Summit, Tupper Lake NY, November 3, 2016 (repeated 2017-2020).
29. Powers, S.E., J.E. DeWaters, P.J. Parker, A. Landis, Transforming Your Education Activities into Funding and Publications. Workshop presented at AEESP conference, Ann Arbor MI, June 2017.
30. Dhaniyala, S., S.E. Powers, K. Balakrishnan, R. Dhiman, S. Tripathi, Air pollution, climate change and human health in India: Interlinked challenges. Clarkson-SRU-ICMR Indo-US Knowledge Initiative Project - Training Workshop, Sri Ramachandra University, Chennai, India, December 18-20, 2017.
31. Powers, SE, Sustainability in Engineering Design. Half-day workshop for TISED faculty to support development of new M.Eng in Sustainability in Engineering and Design. McGill University, Montreal Que. Feb, 2018.
32. Powers, S.E., “Creating an Energy Action Plan for your School” Workshops for students and teachers at the Capital Region Youth Climate Summit, Malta NY, March, 2018.
33. Dhaniyala, S., S.E. Powers, K. Balakrishnan, Air pollution, climate change and human health in India: Interlinked challenges. Clarkson-SRU-ICMR Indo-US Knowledge Initiative Project - Training Workshop, Sri Ramachandra University, Chennai, India, January 8-10, 2019.

TEACHING EXPERIENCE (through Spr 2022)*The University of Michigan*

CE428 Introduction to Groundwater Hydrology (1 semester)

Clarkson University

CE212 Introduction to Engineering Design (4 semesters)

CE403 Civil Engineering Laboratory (5 semesters)

CE481 Hazardous Waste Management Engineering (w/ CE581) (7 semesters)

CE491 Senior Capstone Design (with ME446, MP401 and CE686) (23 semesters)

CE514 Groundwater Hydrology (3 semesters)

CE586 Industrial Ecology (became CE486/586 F05) (12 semesters)

CE587 Contaminant Transport in Groundwater (2 semesters)

CE681 Environmental Physico-Chemical Processes (8 semesters)

MP415/418 Partners in Engineering / Project-Based Learning Partnership (11 semesters)

HP200/208 Clarkson Sophomore Honors Course (2 semester)

ES436 Climate Change Science, Policy and Engineering (w/ EV536) (9 semesters)

EV390 Sustainability Project Experience (7 semester)

EV305 Sustainability and the Environment (1 semester)

PROFESSIONAL ACTIVITIES*Editorial Duties*

Editorial Board, *Sustainability* (2019-present)

Guest Editor, May/June 2006 issue (23(3)) of *Environmental Engineering Science*, Special edition–
“Pushing the Boundaries, Making research and education in environmental engineering count.”

Associate Editor, *ASCE-Journal of Environmental Engineering* (1996-2000)

Editorial Board, *Advances in Water Resources* (2000-2009)

Editorial Board, *Journal of Contaminant Hydrology* (1997-2010)

Editorial Board, *Environmental Technology* (1995-1999)

Advisory Boards

Member, external advisory board, Kettering Inst. Industrial Ecology Initiative, Flint MI (2004-2007)

Member, Board of Directors, Community Energy Services, Inc. Canton NY (2004-2009)

Member, SLLBOCES STEM advisory board, Potsdam NY (2007-2011)

Guest member, Alcoa (corporate) Environmental Technologies Advisory Board (2007)

Member, Advisory Board of Visitors, Division of Engineering, University of Vermont (2007-2012)

Member, External Advisory Board, WPI Environmental Engineering program (2008-2012)

Member, NYSP2I Technical Advisory Committee (2010-present)

Member, North Country Economic Development, Homegrown Sustainability Plan, Energy Working
Group and Materials Working Group (2012)

Member, NREL Technical Advisory Committee for End-use Load Profiles for the US Building Stock:
Market Needs, Use Cases and Data Gaps (2018- 2022)

Affiliations/Committees

United States Environmental Protection Agency

Appointed member, Science Advisory Board, Env. Engrg. Committee (2003-09; 2016-2018)

Contaminated Sites and RCRA Multi Year Plan Panel (2004)

Pollution Prevention consultation (2008)

Association of Environmental Engineering and Science Professors (1993-present)

Ad-hoc AEESP Fellows Governance committee (2017, chair)

AEESP Fellows Steering Committee (2018-2020, chair)

Elected, AEESP Fellow (2014)

Member, AAEE/AEESP Environmental Engrg. Body of Knowledge committee (2007-2009)

Elected member, Board of Directors, (1998-2001)
 Chair, Publications committee (1998-2001)
 Member, Long-Range Planning Committee (1997)
 American Society of Engineering Education (1995-present)
 Elected member of the board of the ASEE Engineering Research Council (2007-2010)
 Appointed interim Vice Chair (2008-2009) (includes titles of “Chair elect” and Program committee chair)
 North Country Regional Economic Development (2012)
 Member of Energy Focus group, Cleaner Greener Communities Grant Program, North Country Homegrown Sustainability Plan
 Association for the Advancement of Sustainability in Higher Education (2010-present)
 New York Coalition of Sustainability in Higher Education (2012-present)
 Co-coordinator, Workshop on Service Learning and Sustainability: Avenues for Collaboration (July 20, 2012, Hobart and William Smith Colleges, Geneva NY)
 North Country Regional Representative (2013 – present)
 American Chemical Society, Environmental Division (1988-present)
 American Society of Civil Engineers (1997-present)
 National Ground Water Association (1995-2009)
 American Geophysical Union, Hydrology Section (1990-2005)
 Water Environment Federation (member 1984 - 1999)
 member: Student Activities Committee (1994-1998)
 member: Groundwater Committee (1994-1998)

Review Panels / External Reviews

NSF Phase II SBIR program (1995)
 NRC/Air Force Office of Scientific Research – Particulate Mechanics Review Panel (1997)
 NSF Environmental Engineering and Technology – CAREER Awards (2000)
 External reviewer of Ph.D. Dissertation of John Molson, Univ. Waterloo (Aug. 2000)
 External Reviewer of M.S. Thesis, J. Rayner, University of Western Australia (March 2002)
 NSF Distinguished Teaching Scholar Award (March 2005)
 NSF Engineering Education – CAREER Awards (August 2007)
 NSF Science Technology Center proposal site review (September 2009)
 External reviewer of Ph.D. Dissertation of Juliana Freitas, Univ. Waterloo (Oct. 2009)
 Review Panel - U.S. EPA’s draft Report to Congress entitled “Biofuels and the Environment: First Triennial Report to Congress” (March 2011)
 External and panel review - 2011 Blavatnik Awards for Young Scientists, New York Academy of Science (March-May 2011)
 NSF Panel Review – Transforming Undergraduate Education in STEM (TUES) (July 2011)
 NSF Panel Review – Transforming Undergraduate Education in STEM (TUES) (March 2013)
 External reviewer of Ph.D. dissertation, Roberto Turconi, DTU, Lyngby DK (April 2014)
 NSF Site Review Team – ReNUWIt ERC (Stanford CA, May 2013, January 2016)

Reviewer (past year - proposals, manuscripts, reports, other than as Assoc. Editor)

Environmental Science and Technology
Energy Policy
Int’l Journal of LCA
Environmental Engineering Science
Journal of Geoscience Education
ASCE Professional Practice in Engineering Education

Workshop/ Meeting Organization

- co-chair: Special symposium at WEFTEC '95 (Chicago, October, 1995)
Comprehensive Assessment of In Situ Groundwater Treatment Technologies
- moderator, ASCE National Meeting, (Washington DC, November 1996)
NAPLs in the Subsurface Environment: Assessment and Remediation
- moderator: AAEE/AEEP Environmental Engineering Education and Practice Conference
How to Incorporate Case Studies in Environmental Engineering Classes
(Orono ME, August 1996)
- co-convenor special session at AGU Spring Meeting (Baltimore MD, May 1997)
Laboratory, Field, and Numerical Investigations of Reactive Transport
- organizing committee for the National Water Research Institute workshop to identify important issues for comprehensive life cycle environmental impacts associated with automotive fuel options (Pomona California, February, 2002)
- co-chair, workshop presented at the AEESP/AAEE Research and Education Conference,
Industrial Ecology Topics for Environ. Engineering Classes (Toronto CA, August 2002)
- co-chair, 2005 AEESP Conference – *Pushing the Boundaries – Making research and Education in Environmental Engineering Count* (Potsdam NY, July 2005)
- co-chair, 2006 COEES *Fuel the Future Biomass Energy Summit* (Potsdam NY June 2006)
- member, AEESP *Frontiers in Environmental Engineering*, workshop planning committee (Tucson AZ, March 2006 – Feb. 2007)
- chair, 2005-2010, Youth Energy & Environmental Expo component of the North Country Sustainable Energy Fair (April, Canton NY)
- coordinator, VW Diesolution and Clean Energy and Transportation Expo (Potsdam NY, Oct. 2007)
- facilitator and moderator, *Pelleting in the North Country: Keeping our heating dollars at home.* (Canton NY, November 7, 2007)
- co-chair, 2008, ASEE ERC Workshop and Forum- *Engineering Research: Opportunities and Impact*, (Alexandria VA, March 2008).
- chair, 2009, ASEE ERC Conference, *Engineering Research for a Changing World* (Alexandria VA, March 2009).
- session coordinator, AEESP biannual conference, session on “Managing the Nitrogen Cycle.” With Thomas L. Theis (UIC) and Shelie Miller (Clemson). (Iowa City, July 2009)
- organizing committee, workshop on Service-Learning and Sustainability: Avenues for Collaboration, Hobart and William Smith Colleges (July 20, 2012, Geneva, NY)
- organizing committee, *Climate Change: We are all in it together.* St. Lawrence University week-long event, September 2012.
- organizing committee, *Climate Change: Democracy in Action.* St. Lawrence University week-long event, September 2013.

Workshops – invited attendee

- U.S. DOE and the Western States Petroleum Assoc. - workshop on the increased use of ethanol and alkylates in automotive fuels in California. (Oakland CA, April 11, 2001).
- US EPA -sponsored planning meeting for a Comprehensive Environmental Assessment of Reformulated Gasoline Options. (Research Triangle Park NC, May 2003).
- University of Oklahoma – NSF-Sponsored workshop on Assessing the Sustainability of Bio-based Products (Norman OK, June 2003).
- WELI - Women in Engineering Leadership Institute’s Advanced Leadership Conference, (Syracuse, New York, October 7-10, 2004).
- AEESP – *Frontiers in Environmental Engineering Education* (Tucson AZ, January 2007) (on organizing committee, session facilitator)

Assoc. for the Protection of the Adirondacks - Adirondack Energy Forum (Lake Placid NY, May 2007; June 2008)

Sustainability in Engineering Education, NSF (Washington DC, August 2014)

Consulting

Fognani and Faught, PLLC, 2007

GEI / Atlantic Environmental, 1993-1995

Canton (NY) Water Treatment Plant (*pro bono*), 1996

Village of Potsdam (NY), 1999-2000

Pennsylvania Power and Light, 1999

SERVICE TO CLARKSON

CEE Departmental Committees

Undergraduate Committee 1993-98

Publications Committee (Chair, 1996-1997) 1996-98

Graduate Committee 1998-99, 01-05

Ad hoc recruiting committee 2001

Ad hoc BS Env. Engrg implementation committee 2005

Env. Engrg faculty search committee (many)

CSoE Committees

Curriculum Committee 1995-97

Freshman Year Committee 1998-99

SPEED Advisory Council 2002-03

Search Committee – SoE Faculty 2004 – 05

CSoE Web committee (chair) 2006-2010

University Committees

Gender Issues Committee 1993-96

Greek Life Task Force 1997

Teaching Improvement Committee 1997

Task Force on Parking 1997-99

Committee to Evaluate Ph.D. Programs 1999

Environmental research focus area exploratory committee 2000

Center for Environment/ISE steering committee 1999-2002, 2004-present

Campus Sustainability Initiative - Steering Committee and Chair, Energy Issue Team 2001-02

Office of Educational Partnerships, steering committee 2003-present

Web design committee 2006-2010

Search committees

CSoE Dean ('00-'01; '02-'03)

Director, Division of Research ('04-'05)

Director, Clarkson Honors Program and School ('09-'10)

Other

Representative, 6th AISES Science and Engineering Fair 1993

Mentor, NSF Summer Science Research Program 1994-95

Mentor, McNair Scholarship Program 1996-97; 99

Advisor, Clarkson Environmental Club 1994-96

Co-advisor, Chi Epsilon 1996

Secretary, Clarkson Chapter of the Phi Kappa Phi Honor Society 1996-98

STUDENTS AND RESEARCH PERSONNEL DIRECTED*Fulbright Visiting Scholar*

Dr. Robert Niven, University of New South Wales, Canberra Australia January– February 2003

Post-Doctoral Research Associates

Dr. Jahangir Morshed April 1997 – October 1998

Dr. Sang-il Hwang January 2000 – April 2003

Dr. Kwang Pyo Lee February 2005 – December 2005

Dr. Amanda Lavigne May 2008 – August 2008

Research Associate

Jan DeWaters October 1996 – June 2005

Research Trainees

Janet Kowles (B.S.C.E. '97) January-August 1997

Lauren Malone May 1997 – March 1998

Ph.D. Students (current location)

Indumathi M. Nambi (IIT Madras) December 1999

“Dissolution of NAPLs in Heterogeneous Media”

Jianzhong Zheng (Chinese Academy of Sciences) March 2001

“Characterization of Constituents in Complex NAPLs that Affect Wettability”

Hilary Grimes (EvMM; co-advised with T. Theis) (SAIC) August 2005

“Game theory analysis for improved bottle recycling and return policies”

Anahita Ahmadi Williamson (US EPA) March 2006

“Separation of color toner waste for reuse” (EvMM program)

Wenqian Dou (Sullivan International Group, Inc.) November 2007

“DNAPL constituents and mechanisms contributing to low interfacial tensions in the subsurface”

Amanda Lavigne April 2008

“A systems and industrial ecology approach to optimize fuel grade ethanol production in Upstate New York”

Mark Z. Venczel August 2010

“Environmental Impacts and Energy Value of Anaerobic Digester Systems for Dairy Farm Energy Recovery”

Stephen E. Heermann (Egan & Assoc.) incomplete

“Fate of Oxygenated Gasolines in Subsurface Systems”

Jan E. DeWaters (Clarkson University) May 2011

“Energy Literacy – Appropriate content and mechanisms for educating K-12 Students”

Leila Nikdel August 2020

“Building Energy Modelling”

Claudia Bustamante (co-Advised with S. Bird) on-going

Smart Housing Project – Understanding electricity use

M.S. Students

Michael Tamblin, September 1994

“Effect of Synthetic Gasolines on Soil Wettability”

William Anckner, May 1997

“The Effects of Environmentally Significant NAPLs on Soil Wettability”

Garrey Curry, not finished

“Dissolution of NAPLs in Heterogeneous Media”

Scott Davis, September 1998

“Sorbents for Treating Groundwater Contaminated by Oxygenated Gasolines” Daniel Hugaboom,	March 2000
“Effect of pH on NAPL Recovery by Waterflooding” Steven Geise,	September 2000
“Polymer Flushing to Improve NAPL Recovery” Cory McDowell	June 2002
“Effects of ethanol on infiltration and spreading of gasoline in the vadose zone” John Cianci	June 2002
“Fractal analysis to define interfacial area for subsurface multiphase flow” Tao Fu	July 2002
“Microwave regeneration of synthetic carbonaceous adsorbents” Angela Link (co-advised with Stefan Grimberg)	January 2003
“Microbial transport and adhesion in NAPL-contaminated porous media” Kamel Omrane	April 2003
“Critical variables affecting interfacial properties in complex NAPL-contaminated systems.” Shelia Negron-Vázquez	September 2006
“Exploring the Fate of Water-in-Oil emulsion Diesel Fuel in Subsurface Systems” Chu Zhang	October 2006
“EPIC modeling to quantify nutrient loading to surface waters from energy crop production” Amy Wormsley	December 2008
“Indicators of Human Health Impacts from Ethanol and Gasoline Lifecycle Air Emissions” Rudras Baliga	May 2009
“Lifecycle assessment of algae as biodiesel feedstock” Jamil Kusiima	May 2009
“Environmental costs of fuel ethanol production” Ke Ke Li	July 2009
“Life Cycle Assessment of Feasible Feedstock for Biodiesel Production in Northern New York” Yunhui (Rhoda) Deng	December 2009
“Separation of sand from dairy manure” (co-advised with Stefan Grimberg) Brendan Cook	September 2010
“Heat value of Northern New York biomass in contrast with ethanol production.” Andrew Brouwer (Environmental Science and Engineering)	December 2010
“Optimization of the Anaerobic Digestion System Simulator” (co-advised with Stefan Grimberg) Mark Huber (Environmental Science and Engineering)	May 2012
“Fly 2.0 – Innovations and Analysis of a New Electric Bike Concept” Zhengteng Gu (Environmental Science and Engineering)	September 2012
“Lettuce growing in aeroponics-based CEHRF system” Nathaniel Gilbraith (Environmental Science and Engineering)	August 2012
“Analysis of environmental and energy benefits of residential demand response” Alex French (Environmental Politics and Governance)	January 2015
“Analysis of University Carbon Sequestration Programs via Forestry” Venessa Brabrant (Civil Engineering)	August 2015
“Effective Greenhouse Operations” Daegan Gonyer (Engineering Science)	incomplete
“Design of a controlled high-rise agricultural system for cold climates” Yashodhara Chowdhury (ESE)	August 2016
“Treatment of anaerobic digester effluent for greenhouse fertilizer” Gabriel Susca-Lopata (MS ESE)	January 2018
“Building energy modeling of ERC”	

Matt Hawthorne (MS ESE)	May 2021
LCA – reuse of Performance Outer Wear	
Maeva Teixeira Machado (MS ESE)	May 2023 (expected)
Potsdam Food Waste Management	
Avery Paradis (MS ESE)	May 2023 (expected)
LCA – BurpBusters	
Paul Rechberger (MS EP)	May 2023 (expected)
Potsdam Food Waste Management	
Victor Manuel Melgarejo	May 2022 (expected)
Cheel Energy Efficiency	

M.E. Students

Aris, Azmi (w/ A.K. Zander)	December 1993
“Ozonation for Treating Organic Waste from a Printed Circuit Board Industry”	
Mastracchio, John	May 1994
“Soil Remediation and Reclamation Design”	
Robinson, Nathan	May 1994
“Soil Remediation and Reclamation Design”	
Rearдон, Michael	May 1995
“Treatment, Solidification, and Disposal of the WERC Corporation Solar Pond Sludge”	
Templeton, Paul	December 1995
“Application of Bioslurper Technology to a Petroleum Spill Site at Plattsburgh AFB”	
Pond, Eric	May 1996
“In Situ Vitrification for Underground Storage Tank Remediation”	
Brown, Elizabeth	May 1996
“In Situ Vitrification for Underground Storage Tank Remediation”	
Bova, Lorraine	December 1999
“Remediation of an Acid Mine Drainage Superfund Site”	
Folsom, Jamie	May 2006
“Batch process design to produce biodiesel for Potsdam Central School District”	
Shiwei Hou	August 2007
“Environmental benefits of process intensification production of biodiesel”	
Ethan Bentley	May 2010
“Green design of a high-rise, high technology greenhouse”	

Undergraduate Students

Thomas Seacord (2 nd place, WEF Student Paper Competition)	May 1994-December 1995
Anne Sutheimer	Summer 1995
Matthew Pelton	May 1996-May 1997
Thaddeus Owen	Summer 1996
Thomas Austin (McNair Scholars Program)	Summer 1996
David Rogers	October 1996-May 1997
Corrinna Cyr	Summer 1997
Kevin Graves	Summer 1997
Christi Yerks (Tuskegee University, McNair Scholars Program/REU)	Summers 1997, 1998
Jordan Furnans (Princeton University, REU)	Summer 1998
Tammy Boulais	Summer/Fall 1998
Ronald Rozwood	Spring/Summer 1999
Kwabena Adu-Sarkodie (Notre Dame University, REU)	Summer 1999
Benjamin Damstedt (Utah State University, REU)	Summer 1999
Sarah Albers (U. Missouri-Rolla, REU)	Summer 2000

Justin Spencer (Princeton University, REU)	Summer 2002
Rebecca M. Thomason (Texas Tech, REU student)	Summer 2005
Benjamin Brown-Steiner (Clarkson Honors thesis)	October 2006 – May 2008
Kyle Snyder (co-advisor, Clarkson Honors Thesis)	September 2007 – May 2008
Eileen Stachowski (REU (NASA GCCE))	May -August 2010
William Armington (REU (NASA GCCE))	May -August 2010
Emily Thurston (NASA)	May – August, 2011
Micah Fish-Gertz (REU (NASA GCCE))	May – August, 2011
Brittany Guarna (ES&P thesis)	Sept 2011 – May 2012
Erin Corrigan (ES&P thesis)	September 2013-May 2014
Connor Raymond (\$CORE sustainability fund)	Jan-May 2015
Michaela Ott (\$CORE sustainability fund)	Jan-May 2015
Sonja Gagen (\$CORE sustainability fund)	Jan-May 2015
Amy Hait (Honors)	Sept. 2015 – May 2017
Dakota Bragg (Honors - SHP)	Oct 2017-May 2020
Elisha Snow (SHP)	Oct 2017-Dec 2019
Oksanna Vysochanska (CSTEP)	May-July 2019
Jaymes Suiter (NYSP2I – Food waste)	May – August 2021
Elise Sadlowski (NYSP2I – Food waste)	May – August 2021
<i>Research related to DANC/P3 algal biodiesel project:</i>	
Bethann Parmelee (Honors, EPA P3)	May 2010 – May 2012
Ryan Esposito (DANC)	May – August, 2011
Mitchell Mauchiba (EPA P3)	Sept 2011 – Dec 2011
Joseph Pesante (EPA P3)	Sept 2011 – Dec 2011
Kathryn Lawson (Honors Program) (co-advised by Dr. M. Twiss)	May –Aug. 2012
Gabrielle Pawlowski (Honors Program) (co-advised by Dr. M. Twiss)	May – Aug 2012
<i>Research related to greenhouse project:</i>	
Daegan Gonyer (McNair Scholar, continued for MS)	June –Dec. 2008
Shaun Jones (EPA P3)	May –Dec. 2010
Ashley Waldron (CEE research credit)	Sept 2011 – May 2012
Rebecca Janshego	May –Dec. 2012
Amanda Borok (Honors Program)	May -Dec. 2012
Stephanie Robertson	Sept 2012 – April 2013
Janine Goodwin	Jan-Sept. 2013
Ryan Braun	Jan-April 2013
Casey Engle	Jan-Dec 2013
Alex Julien	Jan-April 2013
Rhea Dorris (NSF REU)	May – July 2013
Elizabeth Hartz	Sept. – Dec. 2013
Nicholas Multari	Sept 2014-May 2015
David Josephs	July-Dec 2014
Charlotte Staats	Jan 2015 – May 2015
Cassandra Hopkins	Jan 2015 – May 2015
Valerie Shao (Cornell, REU)	May – Aug 2015
<i>High School Students (Clarkson’s Summer Science Apprenticeship Program)</i>	
Denise Doig (Mt. Vernon NY)	Summer 1994
Sharinne Sukhnanand (Teaneck NJ)	Summer 1995
Hortensia Casas (Bronx NY)	Summer 1995